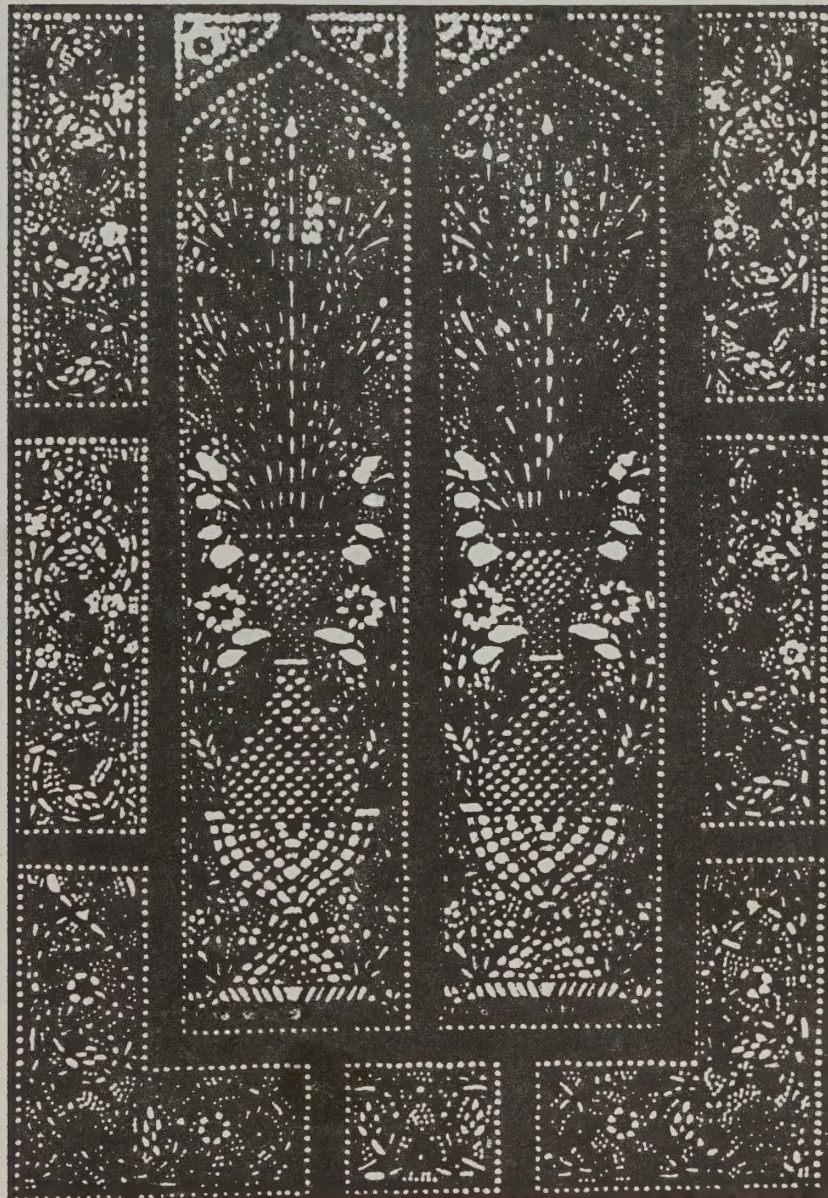


REVIEW OF INTERNATIONAL BROADCASTING

TRT

THE VOICE OF TURKEY



AUSTRIA (VIA DIANE MAUER, WI) RAI's REPORT FROM AUSTRIA IS DAILY EXCEPT FOR AUSTRIAN COFFEETABLE ON THE SUN 1030, 1130, 1330, 2130, MON 0330, 0630 BCS--MAINLY MUSIC OF ALL STYLES. RFA INCLUDES MAILBAG, DX NEWS FROM SAT 1430 THRU SUN 0830. DX PROGRAMS IN OTHER LANGS: GERMAN: DX-TELEGRAMM, SUN 0055, 0455, 0855, 1155, 1355, 1655, 1855, 2055; KURZWELLENPANORAMA, SAT 0505, 0805, 1105, 1405, 1705, 2005, 2330, SUN 0205. FRENCH: FLASH DES ONDES, SAT 1630, 1930, SUN 0030. NONE MENTIONED IN SPANISH, THO PUEDE SER.

BELGIUM (VIA ARTHUR FURROW, ME; GIGI LYTL, TX) RVI's BRUSSELS CALLING STARTS WITH NEWS, PRESS REVIEW, BELGIUM TODAY. FOLLOWING FEATURES ON THE 18, 21, 2330 BCS MON-THU ARE REPEATED NEXT DAY IN THE 0630, 09, 13--MON, FOCUS ON EUROPE, SPORTS. TUE, AROUND THE ARTS, P O BOX 26. WED, LIVING IN BELGIUM, GREEN SOCIETY. THU, ECONOMICS, NORTH-SOUTH. FRI EVE AROUND THE ARTS, TOURISM. ALL SAT BCS: NEWS, PRESS REVIEW, RADIO WORLD WITH FRANS VOSSEN, TOURISM. SUN, NEWS, P O BOX 26, MUSIC FROM FLANDERS. MON MORN, RADIO WORLD, TOURISM IN FLANDERS.

CANADA (VIA BILL WESTENHAVER, PQ) RCI PGMS AS PUBLISHED, TIMES APX, OFTEN AFTER NEWS: SPECTRUM Tu-Sa 01, 04, 1230, 1330, 1630, 2030. INNOVATION CANADA, Su 01, 04, Sa 1230, 1330, 1630, 2030, 22. EARTH WATCH, Su 0130, Sa 21, 2230. ARTS IN CANADA Mo 01, Su 1330, 2030, 22. THE MAILBAG, Mo 0130, 04, Su 1230, 1630, 21, 2230. INFO CANADA--FORCES PGM WITH WOJTEK GWIAZDA, M-F 05.

CBC PGMS ON RCI: BEST OF MORNINGSIDE Tu-Sa 02. INSIDE TRACK Su 02, Sa 23. OPEN HOUSE Mo 02, Su 23. AS IT HAPPENS, M-F 12-13, 2230-24. SUNDAY MORNING Su 13-16. WORLD AT SIX, M-F 22.

(WESTENHAVER) HOWEVER, UT MON JUNE 7 AT 02 CARRIED QUIRKS & QUARKS NOT OPEN HOUSE, HOPE PERMANENT CHANGE IN RESPONSE TO LISTENER COMPLAINTS, BUT NOT SURE YET (GH:) VICTORY OF SCIENCE OVER RELIGION? OPEN HOUSE HAS STAYED ON THE MON 12 BC CONTRARY TO PRINTED SKED. MAILBAG NEEDS A LOT OF WORK--TOO MUCH MUSIC, TOO LITTLE DIALOG WITH LISTENERS. N.B. VANCOUVER CITY NOT = VANCOUVER ISLAND! CBC RADIO GUIDE VIA TIM FLANNERY PREDICTS THAT FROM JUNE 27, SUNDAY MORNING GOES TO SUMMER-MODE OF 2-HOUR SHOWS, CENTERPOINT THE 2ND HOUR AGAIN, SOMETHING ELSE FILLING 3RD HOUR. IDEAS TOPICS, 9:05 PM LOCAL NOT ON SW: MONS JUNE 21/28 THE RISE & FALL OF THE MIDDLE CLASS. TUE 22, ANGELS AMONG US. WED 23, SUSTAINABLE AGRICULTURE. THU/FRI 24-25, JULY 1-2, THE EARTH IS NOT AN ECO-SYSTEM, ONE YEAR AFTER RIO CONFERENCE. TUE/WED JUN 29-30, SALEM AND THE SUPERNATURAL.

(M. HACKETT, OWNER/OPERATOR, NW SW RELAY COMPANY, P O Box 395, 720 SIXTH ST., NEW WEST. BC V3L 3C5; TEL. 604-589-4688) NSRC IS INTERESTED IN INSTALLING SW TRANSMITTERS AT EXISTING AM/FM SITES IN THE AREA BETWEEN VICTORIA AND KELOWNA BC, AND OPERATING AS A PRIVATE RELAY FOR OVERSEAS SW STATIONS NEEDING BETTER COVERAGE IN WESTERN N. AMERICA. INQUIRIES WELCOME FROM POTENTIAL SITES AND CUSTOMERS!

ECUADOR (GH) ON DX PARTYLINE JUNE 5, KEN MACHARG MENTIONED THAT HE WAS GOING ON FURLOUGH AFTER THE NEXT SHOW; AND THAT RICH McVICAR'S RETURN WAS DELAYED UNTIL AUGUST OR SEPT. DUE TO FUND-RAISING PROBLEMS (EACH MISSIONARY HAS TO RAISE HIS OWN LIVING EXPENSES, THUS THE LENGTHY ABSENCES). ADVANCE PROGRAM NOTES FOR JULY/AUG MENTION ONLY JOHN BECK AS HOST, NO DETAILS FOR THIS OR HAM RADIO TODAY. GEORGE THURMAN HRD DXPL UT MON 0330 JUNE 7 BUT THIS WAS A MISTAKE. ONLY SPECIFIC DETAILS FOR JULY-AUG PERTAIN TO HCJB TODAY, UT MON 02, 06, 07, 0930: JULY 12, INSIDE SCOOP ON 500 KW XMTR, COMPUTER CONTROLS. 19, HERB JACOBSON RECAPS 40+ YEARS OF ENGINEERING AT VOZANDES. 26, HUMOR WITH ROB QUIRING, AND GLIMPSE OF ONTARIO OFFICE. AUG 2, GIVING BIRTH OVERSEAS. 9, HCJB'S WRITERS AND EDITORS IN THE MAZE OF MAGAZINE PRODUCTION. 23, JOHN BECK DISCUSSES THE MESSAGE OF HCJB. 30, TONGUE-TIED MISSIONARIES--LEARNING LANGS.

EGYPT (VIA JOHN FIGLIOZZI, NY) R. CAIRO TO N. AMERICA JAN-JULY 0200-0330 ON 9475 (& 11865?). SKED SHOWS LOCAL DAYS, BUT WE GIVE THIS IN UT DAYS: MON 0205 HOLY KORAN & INTERPRETATION, 0225 ROUND UP, 0235 LIFE IN EGYPT, 0245 LISTENERS MAIL. TUE 0205 EGYPTIAN HOME, 0225 COMMENTARY, 0235 LIGHTER SIDE OF NEWS, 0245 RADIO GUEST, 0255 EGYPTIAN SONGS, 0300 GALLERIES & EXHIBITIONS, 0310 EGYPTIAN SONGS. WED 0205 WHAT DO YOU KNOW, 0225 SPOTLIGHTS ON MIDDLE EAST, 0235 TOURISM IN EGYPT, 0245 CULTURAL LIFE, 0255 EGYPTIAN SONGS, 0305 LETTER FROM EGYPT. THU 0205 WEDNESDAY TALK, 0225 COMMENTARY, 0235 ANCIENT EGYPTIAN CIVILIZATION, 0245 LISTENERS MAIL. FRI 0205 PROFILES, 0225 EGYPT'S FOREIGN POLICY, 0235 BOOK REVIEW, 0245 EGYPTIAN SONGS & MUSIC, 0225[sic, 0255?] CAIRO MAGAZINE. SAT 0205 HOLY KORAN & INTERP., 0225 ALTERNATIVE POINT OF VIEW, 0235 RELIGION OF ISLAM, 0245 EGYPTIAN POP, 0305 AMERICAN IN EGYPT. SUN 0205 Q&A, 0225 PRESS REVIEW, 0235 PAGES OF EGYPTIAN HISTORY, 0245 MOSAIC, 0305 STAMP COLLECTORS CLUB. DAILY 0202 EGYPTIAN MUSIC, 0215 & 0315 NEWS. //is 11600 16/5 & 23/5 (Ogrizek & Padula, ADXN)

FINLAND (VIA GIGI LYTL, TX) SUMMER SKED OF YLE RADIO FINLAND DELETES MOST PROGRAM TITLES, THO WE STILL HEAR SOME OF THEM, IN FAVOR OF GENERAL TITLE COMPASS NORTH, MON-FRI 1130, 1230, 1330, 0145, ALSO SAT 1330. ONLY OTHERS SHOWN ARE: STARTING FINNISH FRI [MEANING UT SAT??] IN THE 0145 AFTER COMPASS & BEFORE 0215, ALSO SAT 1330+. FOCUS SAT 0145 [UT SUN?] AND 1330 SUN AFTER GOOD MORNING AT 1300. SPECIAL FINNISH (AS AN ENGLISH PGM) SAT. 1230.

FRANCE (MIKE COOPER, ATLANTA) RFI PROGRAMMING CHANGES SINCE MAY 2: FIRST 20 MINS OF THE M-F CONTEMPORARY MUSIC SHOW RHYTHMES ON STOCK, 1610-1700 UT IS NOW ON RFI WORLDWIDE, NOT JUST AFRIQUE. 90-MIN MEGA-DANCE SHOW WITH CONTEMPORARY MUSIC, NO TALKING DJ (PROMOS SAY "SANS BLA-BLA") NOW AIRS 21-2130, 22-23. SAT EDITION OF PREVIOUS M-F PGM MEGABASS, FEATURING RAGGA, RAP MX, AND DJ WHO RAPS TO THE MUSIC, NOW AIRS SAT ON RFI AFRIQUE AT 2030.

HUNGARY (VIA JOHN CARSON, MIKE WAGER) R. BUDAPEST TOPICS: MON JUN 21, MUSIC FOR ALL SEASONS--AT OBUDA

CENTRE. TUE 22, GRADUATION STYLE. WED 23, HIT LIST. THU 24, MONEY MONTHLY, TO THE FOLKS BACK HOME. FRI 25, BROUGHAHA. SAT 26, MUSIC FOR ALL SEASONS, GRADUATION STYLE. SUN 27 THE WEEKLIES, HIT LIST, MONEY MONTHLY. MON 28, KID AT THE OPERETTA. TUE 29, THE QUALITY TOURIST. WED 30, THEY SPOKE OUT--MUSICIANS, WRITERS, ARTISTS, DIPLOMATS, POLITICIANS ON DANGERS OF DISCRIMINATION.

INTERNATIONAL VACUUM CONCLUDING DEEP DISH'S SPRING SEASON, JUNE 29 TUE 1:30 PM, JULY 1 THU 5:30 PM EDT IS STAKING A CLAIM IN CYBERSPACE--INFO POLICY FOR THE PEOPLE, PRODUCED BY PAPER TIGER TV, ON C1-17.

JAPAN (VIA GIGI LYTLE) R. JAPAN GENERAL SERVICE, APRIL 93-MARCH 94: ON THE 03, 06, 09, 15, 19 AND 23 BROADCASTS, MINUTES FROM START: DAILY 00-15 NEWS. 15-50 M-F RADIO JAPAN MAGAZINE HOUR WITH TWO FEATURES EACH: MON SPORTS SPOTLIGHT, PEOPLE. TUE A GLIMPSE OF JAPAN, WORLD UPDATE. WED ASIA HOTLINE, ASIA PLAZA. THU JAPAN CLOSE-UP, CROSSCURRENTS. FRI BUSINESS FOCUS, TECHNO-BUSINESS. M-F 50-55 COMMENTARY. 50-55 ON THE 03, 09, 23 NEWS; ON THE 06, 15, 19, TOKYO POP-IN. SAT 15-60 THIS WEEK--PART A. SUN 15-55 HELLO FROM TOKYO--OFTEN WITH SOME SPECIFIC PROGRAM PREVIEWS AT THE END, AS WESTENHAVER REMINDS US, 55-60 VIEWPOINT. ON THE 07 AND 11 BCS, LATTER VIA CANADA 6120, M-F 00-30 RADIO JAPAN NEWS ROUND, 30-50 MAGAZINE HOUR WITH THE 2ND FEATURE AS ON THE ABOVE BCS. 50-55 COMMENTARY, 55-60 NEWS. SAT 00-15 NEWS, 15-60 THIS WEEK--PART B ON THE 07, PART A ON THE 11. SUN 00-15 NEWS, 15-55 HELLO FROM TOKYO, 55-60 VIEWPOINT. AND ON THE 05, 14, 17, 21, AND NEXT UT DAY 01 BCS, THE LAST VIA CANADA 5960. DAILY 00-15 NEWS. 15-50 FEATURES: MON SPECTRUM, TUE ENJOY JAPANESE, WED SPECTRUM, THU THE TRAVEL & BOOK BEAT, FRI MUSIC MIX. THEN 50-55 COMMENTARY, 55-60 TOKYO POP IN. SAT 15-60 THIS WEEK-PART B. SUN 15-30 LET'S LEARN JAPANESE, 30-54 MEDIA ROUNDUP, 54-59 VIEWPOINT.

NETHERLANDS (VIA WILL MARTIN, GIGI LYTLE, DIANE MAUER, FRANK ORCUTT) RN'S PROGRAMMING AS PLANNED IN JANUARY INCLUDES: MIRROR IMAGES, WEEKLY ARTS MAG, TUES--JULY 6-13-20-27, FILM FRONTIERS--THE CUTTING EDGE. THEN, PRESUMABLY IN AUG, SERIES FROM ANTWERP, 1993 CULTURAL CAPITAL OF EUROPE, AND THE FESTIVAL OF MODERN OPERA: TUE AT 52 PAST 07, 09, 11, 14, 18, WED 00, 02, 03. DOCUMENTARIES, ON WEDS+, JUNE, ASIAN REGION TOPICS. FROM JULY 7, MARKS ON MECHANICS--BELLS, CLOCKS, JUKEBOXES, VISITING COLLECTORS. AUG 11, LIVE BC FROM FRIESLAND + OTHERS LIKEWISE THIS WEEK. AUG 18, HOLLAND IN SMALL ADS--SCANNING UNUSAL CLASSIFIEDS. SEPT, FIRST THREE WEEKS, THE OTHER SIDE OF AFRICA--THOSE WHO SURVIVE, AND NEW RELIGIOUS SECTS IN THE NETHERLANDS--52 PAST: WED 07, 09, 11, 13, 15, 17, 19, THU 00, 02, 03, FRI 08, 10, 14, 23, SAT 01. ENCORE REPEATS PREVIOUS FEATURES AT OTHER WED TIMES: 52 PAST 01, 08, 10, 12, 14, 18, 23--JUNE 23, THO IS A NEW ONE ON LAKE USSEL; FROM JUNE 30, NEVIL GRAY WITH ANOTHER STUDIES IN JAZZ. LET'S GET TO BUSINESS, IN JULY BUSINESS SENSE, HOW DUTCH INDUSTRY CATERS FOR EACH OF OUR SENSES--52 PAST MON 08, 10, 12, 14, 18, 23. SOUNDS INTERESTING DOES A SPECIAL ON THE FIRST SAT OF EACH MONTH -- JULY, DUBBING FOR DISNEY; AUG, JUST A GAME?--LINK BETWEEN COLONIALISM AND SPORTS. SEPT, POST EARLY FOR XMAS--EUROPE'S MAIL SYSTEM.

NEW ZEALAND (VIA GIGI LYTLE) RNZI PROGRAMME GUIDE 2 MAY TO 3 OCT INCLUDES THESE BLURBS: ENGLISH LANG BULLETINS OF NZ, PACIFIC, WORLD NEWS ON THE HOUR. SPORTS NEWS ON HALF HOUR 1730-2130. NEWS OF FINANCE AND COMMERCE ON ASIA PACIFIC BUSINESS REPORT AT 1935, 2055. MAILBOX FOR SW ENTHUSIASTS, FORTNIGHTLY, MON 0430, THU 0830, FRI 1930; ALT WEEKS, TRAVEL PACIFIC. FOCUS ON WOMEN--THEIR STORY SINCE GETTING VOTE IN NZ IN 1893, MON 1705. FAITH & WORKS--RELIGIOUS NEWS, MON 0805. KAUPAPA--Today's TOPIC WITH SNIPPETS OF NZ HISTORY, PEOPLE, PLACES, BIRDS, MON 1040. MEET THE MP, IN ELECTION YEAR, TUE 0630, 1010. PRESENTING THE PACIFIC, TUE 0505, PROGRAMS PRODUCED BY ISLAND COUNTRIES' STATIONS. TALKABOUT, IN TOUCH WITH S PAC PEOPLE, ISSUES, EVENTS, WED 0630, 1010. ORIENT EXPRESS, GREETING FROM NZ CHINESE TO FRIENDS, FAMILIES IN ASIA, WED 0900-1000, 1130-1230. TRADING POST, TUE 2035, PACIFIC TRADE w/NZ. 0530 WED CHECKPOINT, CURRENT AFFAIRS. OCEANIA, WED 1945, FRI 1040 INTROES A PAC ISLAND. CALLING THE SOLOMONS, FORTNIGHTLY THU 0400. CALLING NIUE THU 0805. PACIFIC BEAT, MODERN MUSIC FROM AROUND OUR OCEAN WITH MAORI BCER GREG TATERE, FRI 0805. AROUND THE WORLD w/WELSH BCER RUDI HILL 4-WEEKLY FRI AT 0430. GOODNIGHT FROM RNZI w/PERSONALITIES, FRI 1130. SPORTS COMMENTARIES SAT, SUN 0200. SPORTS WRAP UT FRI 1905. [THESE BLURBS DO NOT INCLUDE ALL THE TIMES FOR CERTAIN PROGRAMS]

SPAIN (VIA DIANE MAUER, WI) SPANISH NATIONAL RADIO ANNOUNCED SCHEDULE FOR THE 00, 01 AND 05 ON 9530: M-F, NEWS & PANORAMA--SPANISH POP MUSIC, INVITED COMMENTARY, REVIEW OF SPANISH PRESS, WEATHER, THEN 2ND HALF CHANGING DAILY: MON, SPORTS SPOTLIGHT, CULTURAL ENCOUNTERS--INTERACTIONS BETWEEN SPAIN, NAM. TUE, ECONOMIC REPORT, STAGE & SCREEN. WED, PLANET EARTH--ECOLOGICAL ISSUES ALT WITH SCIENCE DESK--ALSO HEALTH TOPIX; CULTURAL CLIPPINGS--BOOKS, ACADEMIC EVENTS. THU, AS OTHERS SEE IT--JOURNALIST'S VIEW OF SPAIN; PEOPLE OF TODAY--SPANIARDS IN THE NEWS. FRI, WINDOW ON SPAIN--CURRENT EVENTS, WORLDS OF ART & MUSIC. AND M-F SPANISH LESSONS. SAT: DX SPOT, SPAIN SPEAKING--INTERVIEWS, OUTSIDE TRACK--POP MUSIC. SUN, SPAIN & THE AMERICAN WEST--LITTLE-KNOWN TALES OF EXPLORATION, SETTLEMENT. ROAD TO SAN-TIAGO--MEDIEVAL PILGRIMS ON WAY TO GALICIA; RADIO CLUB--MAILBAG AND RECORD REQUESTS. [LOCAL DAYS HERE]

SWITZERLAND (GH) SRI SKED FOR 25/3-28/9 SAYS IT HAS SPECIAL PRGMS DURING THE WEEK DEVOTED TO SCIENCE AND TECHNOLOGY, BUSINESS AND ECONOMICS, CULTURE AND THE ARTS--BUT DOESN'T SAY WHEN!! LAST THURSDAY, RED CROSS PGMS. SAT, GRAPEVINE, SWISS SW MERRY GO ROUND. SUN, 1 & 3, SUPPLEMENT--IN DEPTH TOPIC. 2ND, ROUNABOUT SWITZERLAND--OFFBEATEN TRACK. 4TH, RHYTHMMAKERS, SWISS MUSIC FROM CLASSICAL TO POP TO ROCK TO FOLK. OCCL 5TH SUN, THE NAME GAME, QUIZ, PRIZES. (BOB ZANOTTI VIA LARRY NEBRON:) JUNE 27, FOLK MUSIC SCHOOL, CANTON TICINO; JULY 4, THE JURA QUESTION; JUNE 20, ITU CONFERENCE IN SINGAPORE.

TAIWAN (via Gigi Lytle, TX) VOFC March 28-Sept 26 program schedule, UT days strictly, on the 02, 07, 22 and next UT day 03-- NEWS is first, LET'S LEARN CHINESE is last, but as Westenhaver points out, different level courses on different days of week; features in between: Sun MAIN ROADS & BYWAYS, MAILBAG TIME. Mon JADE BELLS & BAMBOO PIPES, REFLECTIONS. Tue KALEIDOSCOPE, TAIWAN ECONOMIC JOURNAL. Wed INTERCULTURAL MUSIC CITY. Thu PERSPECTIVES, JOURNEY INTO CHINESE CULTURE. Fri PEOPLE, MUSIC BOX. Sat TRENDS, JADE'S KITCHEN.

U K O G B A N I (gh) We held this page right up to press time, but BBC Worldwide for July had not arrived, so here's the last third of June: CONCERT HALL bumped from Sun 1515 for sports, but still Tue 0815, 2315, in June-theme old-age, compositions written then. Others tying in to this theme: DEVELOPMENT 93--Tue 1930, Wed 0230, 0730. DISCOVERY 22nd Tue 1001, 1830, Wed 0330. FROM AGE TO AGE, 6 weeks from 16th 0130, 0930, 1715. GROWING POINTS IN MEDICINE, Sun 0415, Mon 1930, Tue 0915. HEALTH MATTERS Mon 0815, 1945, Tue 0145, 0415. PLAYS OF THE WEEK, Sun 0101, 1201, 1901. THE THIRD AGE, Sun 1401, Mon 0630, 1001 on 20-21st, but 27th THIRD AGE PHONE-IN for one hour first airing, half hour repeats. SEVEN SEAS has been renamed ON THE MOVE and expanded to cover all modes of transport, Thu 1930, Fri 0130, 0930. AD, historical events as if covered by radio, 6 weeks from 5th, Sat 1901, Mon 0101, 1515. JUST THE JOB, 4 weeks from 20th, Sun 0230, 1615, Mon 0730. THE WORLD THAT CAME IN FROM THE COLD, assessing the cold war, Mon 2215, Fri 0730, 1215, 1930. THIRTY MINUTE DRAMA, Sherlock Holmes starring Roy Marsden for 6 weeks, Thu 1130, 1715, Fri 0230. STORIES IN VERSE, Wed 1530, Thu 0030, 1030, but same times June 30-July 1, TWO CHEERS FOR JUNE. BRAIN OF BRITAIN back all summer, Sun 2030, Mon 1215, Tue 0230; MY MUSIC for 8 weeks from 14th, Mon 1715, Tue 0030, Wed 0830. IN GOOD VOICE, about all styles of a cappella, 6 weeks from 22nd, Tue 1030, Fri 0030, 1715. GOOD BOOKS starts a series on comic novels reviewed by comedians, first Bill Oddie, from 26th, Sat 0415, Wed 1445, Thu 0815. WIMBLEDON TENNIS coverage pre-empts everything weekdays 1445-1500, 1615-1645. COMPOSER OF THE MONTH is Grieg, Mon 0230, 1130; Tue 1715. THE CONTEMPORARY VIRTUOSO, Mon 0145, Tue 1445--not, Fri 0415.

U S A (gh) Since RIB-144, WOCR burned down April 4, and was back on the air with new transmitters 37 days later. Some WOCR programs quickly moved to WRNO, WHRI, etc., and some have stayed there or are on both. DX DAILY was revived for 8 weeks on WHRI starting April 12; we had great commercial and editorial support the first month, but both really dropped off in May, presumably for seasonal reasons --so maybe we'll be back in the fall, or with a commercial DX WEEKLY before then separate from W.O.R. See back cover for latest WORLD OF RADIO schedule. WHRI invited us on there, and WOCR came back, but then WRNO dropped us after 11+ years, allegedly to make room for commercial programs bumped by repeats of Rush Limbaugh. So why are they filling W.O.R. slots with old JAZZ 30 tapes?? WOCR started carrying SPECTRUM, a new show in the former Signals slot, UT Sun 0335 on 7435; first edition June 13 was live with congratulatory phone-ins, but little useful info; apparently in future a number of columnists will do features on different topics. WOCR believes the fire to have been arson, tho the official report says cause undetermined. WRNO would rather sell its time to Nazis than give any to us...

(Ernie Behr, Ont., May 13) German "Voice of Freedom" pgm, first noted on WRNO 15420, Sun May 2 at 21-2130 after WOR. Host is Ernst Zündel, neo-Nazi publisher and Canada's most infamous hero of the right, sometimes known as Canada's Adolf Hitler. Has been vilified by Jewish groups and media for a decade, charged and acquitted of spreading anti-holocaust propaganda, and still runs a business in Toronto, exporting his books and tapes mainly to Germany. New pgm on WRNO attacks present German govt, and its mouthpiece DW; also plans English, Russian. May 9, interviewed, British author and holocaust-denier David Irving, who happens to speak perfect German. gh: weaseled his way onto WOCR too, Sun 1630 on 15685 with 13-week contract, before they knew who he was. Also tried to get on WHRI, who did know him

(Mike Cooper, Atlanta) I'm told by a producer for Monitorradio that the second hour on shortwave does not include left-over or rejected pieces from the domestic programs. These are, in fact, features produced specially for the SW audience, obviously emphasizing international stories.

The Hollywood Hotline news service reports that actor Bruce Willis will play VOA jazz host Willis Conover in a production of "Billie's Song," a film about female jazz singer Billie Holiday.

(Radio Ink, Jan. 18, via Steve Carney, DX Ontario June) WJR-760 Detroit simulcasts NIGHTLINE, at 11:30 pm ET to midnight, weekdays. gh: More radio stations should do that==mostly talking heads, anyway, and it's the rule rather than exception for ABC TV stations to delay it until much later.

COSTA RICA (Joe Bernard, RFPI) From June 14 through 25, RFPI's FIRE program presents live broadcasts from the UN World Conference on Human Rights from Vienna, Austria; interviews with participants, testimonies from women who have suffered violence and why that violated their human rights; daily at 1600 in Spanish, 1700 in English on 21465 in the 1200-0300 period, 7375-USB 00-12, 7385-AM 24 hours; repeats 8 and 16 hours later. gh: We were getting it the first night at 0100.

THE NEW SHORTWAVE RADIOGUIDE, 1993 ed. (which advertised on DX DAILY), by John A. Figliozzi, is 8 1/2 x 11 looseleaf, not punched showing SW programs by time, most with a brief explanation of pgm content. Specific frequencies are not shown with programs, but a general frequency list for each station appears in the back. Also lists programs by topic in alphabetical order--mailbags, business, sports, science & tech. \$16 ppd bookrate to NAM from NASWA, 45 Wildflower Rd., Levittown, PA 19057. Pse mention gh/RIE



radio equipment forum

LOREN COX, JR 1106 CLEVELAND AVE LEXINGTON, KY 40505

THE WATKINS-JOHNSON COMPANY, a manufacturer of communications equipments for the commercial and government markets including spectrum spanning receivers for surveillance and ECM applications, are marketing a new HF receiver, the model WJ-8711. This innovative receiver has features that should make it most interesting for the Ham and serious SWL, certainly one to be aware of, tho' the price, \$4,795.00, obviously puts it beyond the means of all but the most financially well endowed of radio hobbyists. Actually this is a "modest" price relative to the usual cost of W-J receivers. Unfortunately I cannot obtain one for review purposes. But since a firm like W-J - consider their commercial and governmental clientele - are not likely to do any "fudging" on published specs, this descriptive information I have at hand should be sufficiently reliable to provide a basis for judging the receiver's performance, tho' obviously some "handsoning" would be most desirable. I would be interested in hearing from anyone who, on the basis of his sensory apparatus, could provide an estimation of the receiver from a radio reception hobbyist's viewpoint.

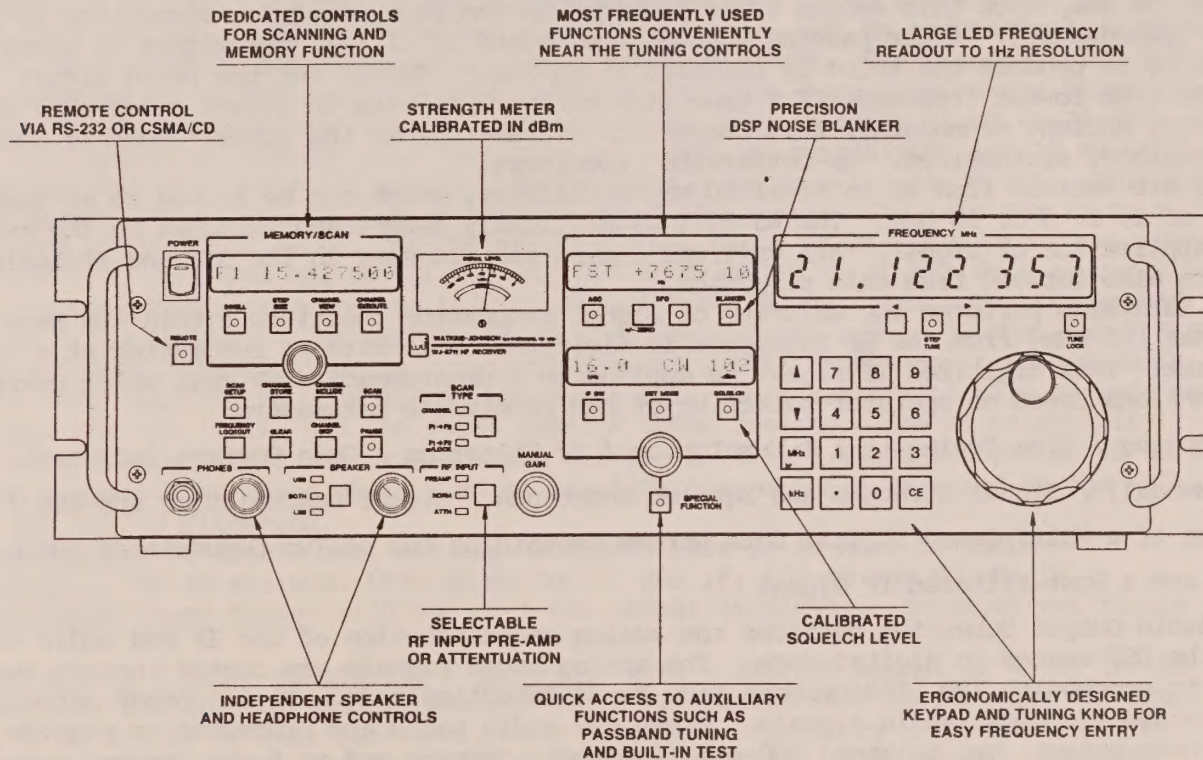


Figure 1. WJ-8711 Front Panel Features

W-J are offering the '8711 as "a fully synthesized, general purpose HF receiver for surveillance and monitoring of RF communications from 5 kHz to 30 MHz with 1 Hz tuning resolution." The most innovative feature of the receiver's design is the incorporation of Digital Signal Processing (DSP), this technology being employed with respect to such functions as noise blanking, IF filtering, AGC, demodulation, BFO and passband tuning. I believe this is the only receive-only unit that makes use of DSP techniques; some "top of the line" transceivers for the Ham market now do so at least in regard to some receiver functions.

Standard bandwidths in the '8711 are 0.3, 1.0, 3.2, 6.0 and 16.0 kHz. These measurements are at the 3 dB points, but the shape factors are very close to that ideal rectangle, with a maximum deviation between 3 and 60 dB down of only .25 (1.25:1) for bandwidths of 16, 6 and 3.2 kHz, .40 (1.40:1) at 1. kHz and .35 (1.35:1) at .3 kHz. Group delay characteristics, 100% of 3 dB bandwidth: typically range from 30 μ s to 60 μ s. The shape factor for USB/LSB/ISB filtering is 1.25:1.

What these selectivity characteristics mean for a broadcast listener is that selectivity can be achieved - the IF passband admitting only the upper or lower sideband if desired - without the loss

of audio fidelity to the degree that occurs with sharp peak, wide skirt, selectivity curves, which can admit heterodynes, hash, from strong adjacent channel stations while still producing fidelity damaging "sideband cutting" on the desired station.

HOW THE RECEIVER WORKS (as described by W-J): "...the WJ-8711 can be divided into four functional subsystems: the RF subsystem, the DSP Subsystem, the IF/Audio Output Subsystem and the Control Subsystem.

"...The 5 kHz to 30 MHz RF signal is applied to the receiver's antenna input, is lowpass filtered and then is either amplified, attenuated or routed to the normal through-path based on user selection." Since only "lowpass" filtering is mentioned here, it is not clear whether the receiver's "front end" incorporates bandpass filters for specific ranges of frequencies as is the case with my ICOM R70 as well as other ICOM, Kenwood and Drake receivers. I suspect this may not be the case since W-J provide as an accessory the WJ-8711/PRE-Suboctave Preselector, which "provides filtering of the RF input spectrum to reduce broadband signal energy into the receiver and to enhance the second order intermodulation performance. Eleven separate filter bands are provided, each covering a segment of the overall tuning range. The receiver automatically selects the filter band appropriate to the tuned frequency. The operator can bypass the filters if preselection is not desired." But JRC's NRD-535 even incorporates CPU controlled double input tuning to the mixer, we gather functioning much as old fashioned ganged tuning capacitor tuning used to work, permitting "front end" peaking on a very narrow range of frequencies.

Continuing with signal passage through the '8511: "The signal is then mixed with the first local oscillator (LO), which tunes from 40.455 MHz to 70.455 MHz. The first IF filter limits the bandwidth of the signal to approximately 30 kHz before mixing it with the 40 MHz second LO to produce a second IF at 455 kHz. A sample of this second IF is provided on the rear panel for connection to a signal display unit [panadaptor]. After passing through the second IF filter, the signal is mixed with the 430 kHz third LO to produce the third IF centered at 25 kHz." Except for the third signal conversion down to 25 kHz (the lowest frequency IF I know of - except for 0 kHz in direct conversion receivers - in any receiver, ancient or modern), this conversion system follows the scheme commonly employed in today's solid-state, synthesized, "up-conversion" receivers.

"All LO's are derived from an internal 10 MHz oscillator, which can be locked to an internal reference input of 1, 2, 5 or 10 MHz. The WJ-8711 automatically senses and switches to the external reference upon application of signal. All critical timing signals used in the DSP and IF/Audio Output Subsystems are also derived from this reference.

"The DSP Subsystem performs the majority of signal processing functions within the receiver. The third IF signal [25 kHz] from the RF Subsystem is digitized to 16 bits of resolution at a sampling rate of 100 kHz. This digitized IF signal is applied to a programmable DSP chip which performs the following functions based on operator selection of the receiver's parameters:

- * Noise Blanking / Fine Tuning to 1 Hz Resolution / IF Filtering / Gain Control (ACG Fast, AGC
- * Slow or Manual) / Signal Strength and Squelch Functions / Signal Demodulation and BFO /
- * Generation of a Multiplexed Digital Data Stream Containing One or Two Demodulated Audio
- * Channels and a Post-Filtered IF Signal

"The IF/Audio Output Subsystem performs the analog reconstruction of the IF and audio signals provided by the DSP system in digital form. The analog audio signals are routed through two distinct signal paths to accommodate ISB [Independent Side Band] detection mode. In all other detection modes, both paths contain identical audio signals. These two audio paths are processed to provide a two-channel headphone output, two balanced 600-ohm line audio outputs and an 8-ohm speaker output containing one or both audio channels in ISB mode. After analog reconstruction, the IF signal is upconverted to 455 kHz, passed through a bandpass roofing filter to remove mixer products, buffered and routed to the rear panel IF output connector"

PERFORMANCE SPECIFICATIONS. (For the sake of comparison we will indicate figures claimed by the manufacturer of the best "under \$1000" receiver, the Drake R8, for the same performance measurements.)

Tuning Range: 5 kHz to 30 Mhz (Tunable to 0 Hz, degraded performance below 500 kHz [presumably reduced sensitivity]. [R8: 100 kHz to 30 MHz (reduced but usable sensitivity from 100 to 1500 kHz).]

Tuning resolution: 1 Hz. [R8: frequency resolution to 10 Hz.]

Frequency stability: Better than 0.7 PPM (0 to 50 deg. C); can be improved with an external frequency standard. [R8: ± 10 PPM (-10 to 50 deg. C); dial accuracy is claimed to be within ± 100 Hz for the same temperature range. Does the '8711 read incoming signals accurately to 1 Hz?]

Synthesizer lock time: less than 10 msec. typical. [R8: NA.]

Antenna Input: 50 ohms nominal, BNC connector (VSWR is 2:1 maximum at receiver's tuned frequency; maximum input signal +30 dBm). [R8: 2 antenna inputs: 50 ohms unbalanced and 50 or 500 ohms unbalanced; VSWR and maximum signal input NA.]

Third Order Intercept Point: +30 dBm typical, +25 dBm minimum (for signals separated by 50 kHz minimum). [R8: Greater than +5 dBm for signals separated by 20 kHz, -20 dBm for signals separated by 5 kHz spacing.] Note: The closer the signal spacing the lesser the input intercept number. Without going into particulars, the TOIP is one of the most important numbers in assessing receiver performance: the better the number the better the receiver's ability to handle signals over a wide range of signal strengths, from the weakest to the strongest, without strong signals impairing reception of nearby weak ones. The 50 kHz spacing necessarily yields a better intercept number than will 20 kHz spacing.

Noise Figure: 14 dB maximum (11 dB maximum with preamplifier engaged). [R8: NA.] Noise figure is not a number we often find quoted for HF receivers. One for which such a quotation was provided was the TMC GPR 90, one of the best of the "double dialed" VT communications receivers. By making use of a grounded grid RF amplifier ahead of the pentode RF amplifier, the 10 meter band noise figure was claimed to be only 6 dB. Because of the high noise levels usually encountered on the HF ranges, an exceptionally low noise figure does not contribute to usable receiver performance.

Detection Modes: AM, FM, CW, USB, LSB and ISB (Independent Side Band); other modes available on order. [R8: AM, LSB, USB, CW, RTTY, FM.] There is no mention as to whether the '8711 employs synchronous detection in the AM mode; the R8, of course, does. But the R8 does not make use of DSP. Does DSP, in and of itself, have an effect on selective fading distortion?

Sensitivity: (w/o preamp) in the 6.0 kHz IF bandwidth, an AM signal modulated 50% with 400 Hz tone produces a 10 dB S+N/N ratio for an input of 1.68 μ V (-103 dBm); an SSB signal (USB/-LSB/ISB) in the 3.2 MHz IF bandwidth produces a 10 dB S+N/N ratio for an input of .056 μ V (-112 dBm); a CW signal in the .3 kHz bandwidth produces a 16 dB S+N/N ratio for an input of .035 μ V (-116 dBm). In the FM mode (4.8 kHz deviation, 400 Hz modulation), a signal input of 2.50 μ V with 16 kHz bandwidth yields a SINAD of 10 dB. These sensitivity figures are for frequencies above 500 kHz. CW sensitivities for three frequency ranges below 500 kHz in a 0.3 kHz IF are provided for a S+N/N ratio of 16 dB (preamp off): 28 μ V (5-20 kHz), 1.27 μ V (20-50 kHz) and .5 μ V (50-500 kHz). (w/o preamp). [R8: AM sensitivity for 10 dB S+N/N ratio is no worse than 3 μ V from 100 kHz to 1.5 MHz and 1.5 μ V from 1.5 to 30 MHz. This is without the preamplifier; with preamp on the 1.5 to 30 MHz sensitivity improves to no worse than 0.8 μ V for 10 dB S+N/N ratio. SSB/CW sensitivities for a 10 dB S+N/N ratio are given as no worse than 1 μ V from 100 kHz to 1.5 MHz and 0.5 μ V from 1.5 to 30 MHz (w/o preamp); with preamp on the sensitivity improves to 0.25 μ V from 1.5 to 30 MHz (presumably the preamp is inoperative below 1.5 MHz). FM sensitivity is given as 0.5 μ V, 1.5 to 30 MHz, for a SINAD of 12 dB. Actually, these rather hair splitting sensitivity figures don't mean a whole lot; both the '8711 and the R8 have all of the sensitivity that can practically be made use of.

Selectivity: For the '8711, see the first page of these remarks. The R8 selectivity figures are 6, 4, 2.3, 1.8 and .5 kHz at 6 dB down and 12, 8, 4.5, 3.6 and 1.5 kHz at 60 dB down. Although respectable, these shape factors are inferior to those realized in the '8711 making use of DSP for IF filtering.

Conversion Stages: 3: 40.255 MHz, 455 kHz, 25 kHz. [R8: 2: 45 MHz, 50 kHz.]

Image Rejection: 90 dB minimum. [R8: 80 dB for 45 MHz if; 100 dB for 50 kHz IF.]

Local Oscillator Phase Noise: -110 dBc at 1 kHz offset (typical). An excellent figure. [R8: NA.]

Reciprocal Mixing / Cross Modulation / Blocking: With a desired signal of 25 μ V in the 3.2 kHz IF bandwidth, the desired signal-to-noise ratio is greater than 20 dB, when an undesired signal 70 dB higher in amplitude and 35 kHz removed in frequency is present. / With a desired signal of 10 μ V an undesired signal 86 dB higher, 30% AM modulated, produces less than 10% cross modulation for frequency separation of greater than 50 kHz in the 1 kHz IF bandwidth. / A 1 watt signal produces less than 5% distortion at the Line Audio and IF outputs. (These are figures to be found quoted only for professional receivers.) [R8: Dynamic Range: no worse than 90 dB, 1.5 to 30 MHz, 20 kHz spacing.]

Audio Amplifier Bandwidth: 100 Hz to 13 kHz; THD is less than 3% at 1 watt. (Very good figures for a "communications" receiver.) [R8: Audio amplifier bandwidth not given; THD is 10% at 2.5 watts output.]

The '8711 RF preamp provides a gain of approx. 10 dB; approx. 15 dB of RF attenuation is also available. (This is similar to a number of today's good tabletop receivers.)

The '8711 provides two line audio outputs. In the ISB mode, one sideband is available at one output, the other sideband in the other. For all other reception modes, the same audio is available at both outputs. There is only one loudspeaker output: in ISB reception, USB or LSB may be selected individually for loudspeaker listening, or they may be combined. There are two unbalanced headphone outputs. In the ISB mode, one output contains the USB (left channel) and the other contains the LSB (right channel). As with the line outputs, in other reception modes both headphone outputs contain the same audio information.

The '8711 is unique in that it comes already capable of ISB operation; for most professional re-

ceivers ISB capability is available only as an option. Now for those of us who are interested in listening broadcast programming via shortwave, ISB reception appears to offer some interesting possibilities. Consider: it would be possible to use heterodyne detection ("ECSS") for each of the two sidebands of a full carrier, double sideband signal independently, then recombining them for listening, or listening to them as the left and right channels of a stereo transmission, thus achieving a pseudo stereo effect? - tho' differences in fading rates - if they exist - between the two sidebands might be a problem. Of course, the most effective means of transmitting AM stereo is by means of the left channel being on one sideband and the right channel being on the other sideband (believe this is the principle of the Kahn System, which broadcasters have not seemed to favor, adopting other systems). Another advantage of receiving both sidebands independently would be that each could be monitored continuously to see which is the most free of interference, using the better one for listening &/or recording. Still to be encountered are VOA and other DSB suppressed carrier feeders with different programming on the upper and lower sidebands. There have been suggestions that broadcasters might at some point use their DSB transmissions for different sorts of information in each sideband, e.g., voiced news on one sideband with SSTV pictures transmitted via the other. Also, presumably, at some point, each sideband could be used for independent digitally compressed transmissions. In any event, I think I'd find this ISB provision fun to play with.

OTHER OPERATIONAL FEATURES of the '8711: Gain Control Modes: Manual, AGC Fast & Slow; AGC Range: 100 dB min.; Apprpx. -108 dBm (0.9 uV) in 16 kHz bandwidth - approx. -125 dBm (0.12 uV) in 300 Hz bandwidth. (Threshold is matched with IF bandwidth and is typically 10 dB above the noise floor); AGC Attack Time: 15 msec typical; AGC Decay Time: Fast - 25 msec typical, Slow - 4 seconds typical.

As for tuning modes (quoting again from the manufacturer's descriptive material): "In addition to fixed-frequency tuning, the WJ-8711 provides a fast, flexible scanning capability. Three scan modes are available: channel scan, F1-F2 scan and F1-F2 scan with lockouts [F=frequency]. For all scan modes, the dwell time can be set from 0.5 to 20 seconds or infinite. In channel scan mode, 100 programmable memory channels are available. Sectors of memory can be specified for individual channel scans, allowing the available memory to be subdivided into multiple search scenarios. The operator can specify certain channels to be skipped without having to delete them from memory. Memory channels can also be stepped manually. In both F1-F2 scan modes, the step size is user selectable from 1 Hz to 25 kHz. Up to 100 independent frequency lockouts can be stored."

Remote control operation of the '8711 is possible "via...one or two selectable serial interfaces ..." When "interfaced" with a human operator, the receiver is microprocessor controlled from the front panel (5.25 x 19 inches - the front panel is the standard rack panel; the receiver also serves as a tabletop unit). See the illustration on the first page of these remarks for the front panel arrangement of controls and LED readouts on the receiver as the operator will encounter them; "ergonomically" the receiver appears well designed.

"A majority of the WJ-8711 operator-selectable parameters are controllable and accessible via an RS-232 remote interface. A Carrier Sense Multiple Access with Collision Detection (CSMA) with a limited instruction set interface may be enabled in lieu of RS-232 to allow the WJ-8711 to be controlled using a command protocol similar to several popular consumer receivers. Selection of the active interface is made via an internal switch setting or by front panel entry. The factory should be contacted for a detailed list of remote control commands in order to eliminate any confusion over the extent of the available commands included in each type of interface.

"All receiver inputs and outputs are available on the rear panel of the unit with the exception of the front panel mounted headphone jack [a stereo type which, in the IDB mode, puts the LSB in the left channel and the USB in the right channel]. The antenna and external reference inputs, as well as the signal monitor and predetected IF outputs, are available on BNC connectors. Speaker and dual balanced line outputs are available on a terminal strip along with de-coupled audio, RSSI and squelch outputs, and a mute control input. [The receiver can be fitted with an internal speaker.] The RS232 interface is available on a 25-pin D-shell connector and the CSMA interface is provided via a miniature phone jack."

The receiver operates on voltages from 97 to 253 volts AC, 47 to 63 Hz. The receiver automatically adjusts to the mains voltage and frequency. Power consumption is 35 watts.

The design and construction of the receiver is such that it can be updated (retrofitted) to keep up with technological developments or particular user requirements.

WHAT WE HAVE HAD IN THESE PAGES is a description of a receiver that is obviously of the first order. Needless to say, I'd love to have one, but to fork out nearly 5 kilobucks of my meagre financial resources for a RADIO would be sheer madness. On the other hand, it may be about time to consider replacing my very reliable ICOM R-70 (how long have I had it? nearly 10 years?) with something representative of 1990s technology. What is most worthy among "consumer" receivers currently available to be considered? That would appear to be the JRC NRD-535 (currently being discounted to about \$1200) and the Drake R8 (available for just under a kilobuck) - my opinion. The Lowe HF-235 looks interesting, but there we're getting into the 2 kilobuck range.

A new under \$500 (discounted) receiver, the FRG-100, has been introduced by Yaesu. This appears

potentially to be an excellent buy, but we'll have to wait for an assessment by the experts who will have one available for testing. Could this receiver be the "FROG 7" of fully synthesized receivers? It will be remembered that YAESU, with the FRG-7, gave the SWL, at a truly modest price, a receiver significantly better in several respects than anything which most SWLs had previously had available to them. Unless one can't live without digital frequency presentation (which now has to be to .xx+) this receiver, with selectivity modification, is still quite usable. (Think I've mentioned that I wish I hadn't sold mine.) YAESU's receivers after the FROG-7 had virtues but were generally surpassed (at least somewhat) by offerings from ICOM and Kenwood in the same price range. So I hope this new YAESU, at the best price for a "tabletop" currently available, turns out to be for the '90s what the FRG-7 was for the '70s.

As you've probably heard, Grove Enterprises have abandoned - for the second time - plans to introduce a receiver of American manufacture bearing their name. First it was to have been a "DC to daylight" receiver, but when that was given up, plans were made for a HF receiver. However, again, developmental costs became prohibitive for Grove: considerable monies had already been invested without an acceptable payoff being in sight. We would all have liked to see Grove succeed in this project. So: for the SWL who wants to "buy American" it looks like the Drake R8 or the W-J 8711.

THINK I'LL "RUN UP THE FLAG AND SEE IF ANYONE SALUTES": Tho' I'm unenthusiastic about parting with any radio in my possession, would not be unwilling to sell the R 70 for something in the range of .4 kilobucks. Excellent condition, a fine SSB and "ECSS" receiver (very stable); does not have memory provision but has two "VFO's", a frequency storable in one while the other is being used; has audio notch filter and RIT (Receiver Incremental Tuning) - permits very fine tuning - infinite resolution tho' synthesiser resolves to 10 Kz increments (readout to 100 Hz) - RIT also permits exact dial calibration; user can keep LO aligned against a standard (like WWV) by means of an accessible internal adjustment; very good RF dynamic range; selectivity optimized for AM/SSB/CW/RTTY (selectable according to mode); includes NBFM adaptor. Have instruction manual and original carton. If interested contact me at the address which heads this column. (As a receiver - discounting the memory provision - the R 70 is a bit better than either the R 71 or R 72.)

A WHILE BACK in these pages I reproduced the dial of a Western Auto Truetone table radio (circa 1938), especially significant for me because this was the radio on which I discovered shortwave radio and in general was my ear on the world of entertainment, culture and the "momentous events" that were the world of the latter 1930s & '40s. ("Entertainment", which didn't seem to be all that great at the time - but through the headphones of nostalgia those old radio shows assume an ineluctable charm, do they not? And Culture? Mostly music - those Sunday afternoon broadcasts of the New York Philharmonic and then the NBC Symphony with Toscanini conducting; on Saturday afternoons there were the Met broadcasts, now of course available to me in discrete stereo via satellite, but a musical education was still possible despite mono audio limited to about 6000 Hz at best. Of course, those were the days when radio strove to offer a great variety in programming - each station tried to offer something for everyone, tho', being a commercial enterprise, the most popular programming ("lowest denominator") got the most air time. And yet, I would have to say, the overall quality of programming, including the "popular", was better than today's television fare. Show me one "sitcom" as good as that daily 11 minute or so visit with Vic and Sade?)

Several weeks ago my brother and I, while looking through a secondhand store, found a still extant example of this model of radio, which turned out to be a Truetone D727, evidently manufactured in late 1937 or 1938 by the Detrola Radio Corporation of Detroit for the Western Auto Stores. It is now functioning but required a virtual rebuilding, replacing virtually all resistors and capacitors. All of the main components, including the tubes were OK (an exception: an open primary on the antenna coil for the 5.5 to 15.7 MHz band - which doesn't seem to impede reception all that much - and a well worn bandswitch). I had remembered this radio as having an RF amp, I guess because it had a three-gang tuning cap. But that is not the case. The three-gang cap is required for a tuned passive preselector. There is only two-gang tuning on the two shortwave bands (antenna and LO), the passive preselector being used only on medium wave (540 kHz-1.8 MHz). Continuous frequency coverage is provided from 540 kHz to 15.75 MHz in three bands. A "tuning eye" sits atop the "airplane dial". A push-pull audio output stage consisting of two 42s is employed. The chassis is housed in a good sized tabletop wood cabinet, providing baffling for the 8" field coil speaker (the field coil means of energizing a speaker is likely unknown to newtimers, the field coil also functioning as a many-henry filter choke for the power supply).

And how well (or poorly - depending on one's perspective) does this receiver, thus far restored, perform? On medium wave, very well indeed: good sensitivity, excellent audio, only one "image" - at 690 kHz caused by a 10 kw. daytimer on 1580 kHz. Selectivity could be a shade better but is quite adequate except for channels adjacent/alternate to the locals (believe this is caused by the super-modulation technique most AMers employ these days, resulting in more "splatter" than used to be the case. Overall medium wave performance is much better than that of the recently restored HQ 100A. Has been most appropriate for listening to the Old Time Radio on WBBM 780, Chicago (after the 9:00 pm ET news). As for shortwave, performance is pretty much as I remembered: those blip-blip-blips of stations as one tunes through the clumps of stations: one must manually tune very slowly through the

SW broadcast bands. Images, as might be expected, abound. Inadequate image rejection could be expected from a receiver not having a tuned RF stage, but it is exacerbated by the low "Q" of the antenna coils. All of the antenna coils (as are the oscillator coils) are wound on a tube, a trimmer cap. attached to each coil (for medium wave the RF coil is wound on this form, the antenna coil being on the top side of the chassis, the trimmer on the tuning cap). The kind of improved selectivity that is possible with ferrite core (slug-tuned) antenna or RF transformers cannot be realized here; that type of coil reduces tracking errors (adjust the slug at the low frequency end of a tuning range and the trimmer cap. at the high frequency end, both for maximum output). But the audio on receivable stations is very good - didn't know, e.g., that WRNO was putting out audio of that quality: gh (WoR) sounds the best I've heard him since I listened to him on FM radio (WUOT, Knoxville) - even better than his brief sojourn on satellite with LTR. The radio's M/O and IF tubes (6A7, 6D6) may be below par but I have no means at hand of checking them. Actually these large old glass tubes can have a surprising lifetime, but internal changes a tube checker won't show may prevent them from operating at optimum in particular circuits. It was common practice for old radio repair men to try several tubes to see which one yielded the best results.

Of course, obtaining and restoring this radio redolent of long bygone days is a yielding to a paroxysm of nostalgia, a desire to be 12 years old again, as I was in WW II years listening to this radio, often late into the night. The hard work of restoration - replacing parts - was done by my brother, my activity being limited to making suggestions and doing alignment (a tricky business on radios of this type because of circuit interactions). We obtained the extant service information from the local antique radio dealer/restorer, Mr Terry Layman, who let us xerox the info from his Ryder's manual containing it. Mr Layman, in his business establishment, has the most old radios, including some communications receivers, I've ever seen in one room, including a gigantic RCA Radiola radio-phono combination (latter 1920s) - the oldest radio I've ever heard in actual operation - at least that I can remember. (He had a very clean Hallicrafters SX-25 that tempted me greatly, but I resisted.) Mr Layman, whose business is at 824 Porter Place #1, Lexington, KY 40508, is the editor of a newsletter, Old Radio Times, "The Official Publication of the Mid-South Antique Radio Collectors". For \$10 per annum one may join the MSARC and receive the newsletter (MSARC, 624 Tamarak Rd., Owensboro, KY 42301). Anyone in Kentucky, Indiana, Tennessee and adjoining states with an interest in collecting/restoring antique radios as a hobby or business would benefit from this organization.

There are so many and various ways of Enjoying Radio, making use of instruments ranging from a Watkins-Johnson WJ 8711 to a Truetone D727 - even in this year 1993. So many varieties of radio experience; so many devices so different in design and construction that are yet definable by - or meet - that concept called "radio".

It is interesting that a radio reception device built in 1938, or even much earlier, can still be used today to perform exactly the same functions it was then (tho', obviously, subsequent devices have been developed that perform those functions in many ways better). What was meant to be a radio (no matter when it was built), if it is still functioning, continues to this day to be a radio, capable of receiving radio transmissions of the same type that were on the air when the radio was built. But will this situation which has obtained for some 70 years still be the case 70 years hence? Will my ICOM R 70 be functional 55 years hence - and, if not, would there be any use for it even if restored to function? It would be as useful for the reception of wireless intelligence bearing signals then as a mechanical scan television receiver is for the reception of television transmissions today?

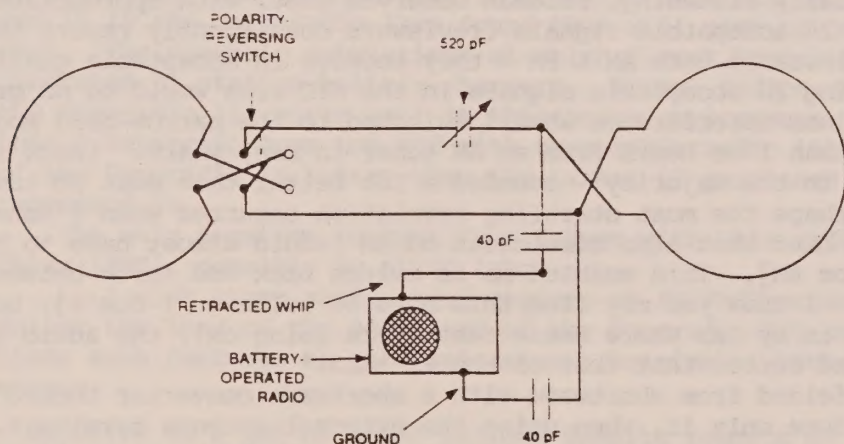
Actually, I was given another Truetone chassis some time ago, a D692, on which my brother had done some work. We dug it out to see how it compared with the D727. It appeared to be the chassis for a more expensive radio, evidently a console. While aligning the D727 I decided to align it also - having never done so. The D692 uses metal tubes in the RF - it has a tuned RF amplifier - Mixer and IF stages (huge IF transformers). (Note: to align a receiver I use an old EICO 324 signal generator; to make sure it's tuned to the frequency I want I use either the DX440 or R 70 as a frequency meter, the 324 dial being too inaccurate to be usable for setting frequencies.) After alignment performance on medium wave is outstanding: very sensitive, no images, selectivity somewhat better than with the D724 (only my HQ 150 can beat it on MW, and at that only marginally, and the audio isn't as good because Hammarlund engineers, in an effort to keep the receiver's noise level as low as possible, limited the receiver's high frequency audio response). Since this chassis was sans power & audio transformers & audio tubes, in rebuilding, my brother made the output stage single ended instead of push-pull (as it originally was) - the idea in these rebuilding/refurbishing projects is to make use only of parts one has at hand, buying something only as a very last resort. Even with only the single ended audio stage the radio sounds very good, plenty of "punch". On shortwave, it isn't bad in regard to sensitivity (really pretty good) and the audio is quite good. An image problem (those low Q "front end" coils again), but better than is the D727. Have had some difficulty achieving correct tracking on the second shortwave band (5.5 to 18 MHz), I think likely caused by a defective fixed padder cap in the oscillator section for that band (with 10 MHz "on", frequencies are drawn in at the high and low ends). The D692 provides two selectivity positions (called the "fidelity switch") - the narrow response setting producing more on the order of "communications receiver" audio. An even more elaborate version of this receiver, the D694, had two IF stages and four output tubes in push-pull parallel. (The page from Ryder's - which we already had - shows both radios.)

Considering the pleasurable listening still possible from the two relic radios discussed here, surviving - with some help - like Oliver Wendell Holmes' "last leaf upon a tree/In the spring", it makes it obvious how satisfactorially one of the prestige, really well designed and built, radios of the same era - like an E.H. Scott - must have performed.

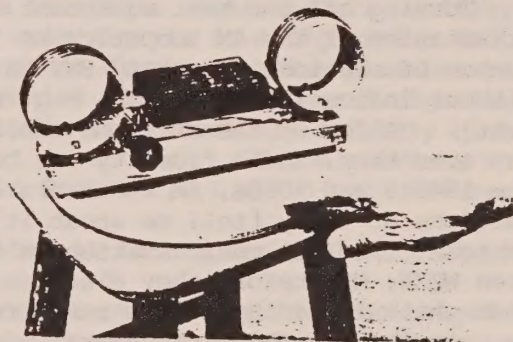
Tuning through the 49 meter band on the D727, I heard yet one broadcast emission that is exactly the same as I heard on the family's D727: the interval musical tones from what is now called Swiss Radio International. Fifty years ago they preceded the opening announcement: "Switzerland calling... Switzerland calling". A sound similar to the ones that often filled the 49 meter band on that other D727 could be heard on the one I now have when, tuning just below 10 MHz, one of the variations on "bubble jamming" from the Middle East could be heard - the one that is three tones in rapid succession, very similar to WW II German jamming.

I HOPE THE ABOVE bit of self indulgence in regard to a really not very important or exciting matter of radio has not been utterly boring for the reader.

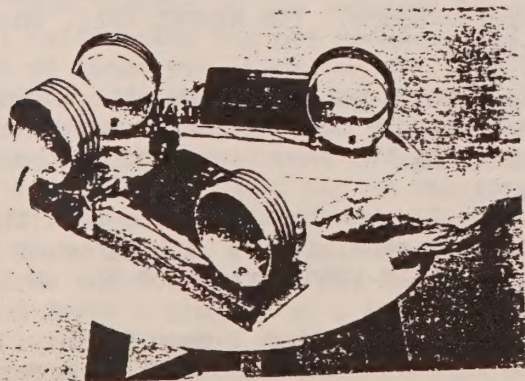
THIS COLUMN HAS BEEN PLEASED TO RECEIVE a copy of MR O.G. (MIKE) VILLARD's article, "More Compact Directional SW Antennas", which is appearing in the 1993 World Radio TV Handbook. Mike is well known for his many contributions to the art and science of achieving better radio reception, recently being occupied with loop type antenna configurations for indoor reception on portable receivers - antennas designed to exploit the physics of radio waves to the end of effectively achieving directional and diversity reception. In this article Mike describes a two loop arrangement (CLA - Cascaded Loop Array). With a modern battery operated SW portable conveniently locatable between the loops, the entire configuration becomes a CLAR. The advantages of this antenna are, with two loops in tandem (in past designs only one loop was used), deep, stable nulls are achieved even with skywave signals affected by QSB (fading). Operation remains the same as before with a single tuning capacitor used for tuning. Another excellent advantage realizable with the CLA(R) is what the author describes as "a kind of full-time diversity reception" made possible "by locating two tandem-loop antennas side by side so they are inductively coupled. In contrast with conventional on-off combining, the result is a stabler, less wavy signal. Speech becomes more intelligible; and music more enjoyable. It is possible this may be the first full-time (as contrasted with on-off) diversity combining scheme. It is suitable for HF, and uses two off-the-shelf receivers without modification." [From a letter accompanying the article.]



THE COMPLEAT SHORTWAVE CLAR. DIAGRAMATICALLY REPRESENTED (FOR COMPLETE DETAILS ON THE THEORY AND CONSTRUCTION OF THIS UNIQUE ANTENNA SEE THE ARTICLE THAT APPEARS IN THE 1993 WORLD RADIO TV HANDBOOK.)



THE CLAR AS INCORPORATED WITH A SONY ICF-SW1 RECEIVER. THE COILS ARE APPROXIMATELY 10 CM. IN DIAMETER. SENSITIVITY IS SAID TO BE CLOSELY EQUAL TO THAT OF THE SET'S OWN TELESCOPIC ANTENNA. CLAR TUNING RANGE: 5-21 MHZ. MOUNTED HERE ON PLASTIC TURNTABLE.



AT RIGHT: TWO CLARS CONFIGURED FOR ACOUSTIC DIVERSITY RECEPTION. NULLS ARE DIRECTED TO EITHER SIDE OF THE GREAT CIRCLE PATH. FOR BEST AD RESULTS, EACH OF THE LISTENER'S EARS SHOULD BE AN EQUAL DISTANCE FROM THE CORRESPONDING SPEAKER.

I WOULD LIKE to thank Mike for the copy of his article. He tells me in a personal communication that his Hammarlund experience much predates mine, still having a Comet Pro he obtained circa 1933. He overcame the receiver's low sensitivity and image problem by converting a National SW3 into a two stage regenerative preamplifier to run ahead of the receiver. (The SW3, a regen rx with tuned RF stage, was National's "Thrill Box".)

HIGH FIDELITY TUNERS/RECEIVERS are normally outside the purview of this column, but in recently perusing the April '93 Audio magazine, I encountered a review of a most interesting unit: the Denon TU-680NAB "SUPERRADIO". What is unique about this tuner is the AM (medium wave) section. The AM portion of virtually all FM/AM tuners/receivers - certainly since the advent of solid-state - has been deplorable in almost every respect: sensitivity, selectivity, audio frequency response, image rejection. This has been the case even with tuners/receivers that have well engineered, fine performing, FM sections. This has been disgusting for an old radio listener like me who knows what AM radio can sound like, how a good AM radio can pull in stations near & far with excellent listenability (.54 to 1.6 MHz). Will put up my in-the-process-of-being-refurbished 1938 Truetone, a "run of the mill" radio for its time, against the AM section of almost any modern FM/AM tuner/receiver.

But the Denon unit marks a dramatic reversal in what had become the standard of mediocrity with respect to AM performance in hi-fi tuners/receivers. Originally designed and built to conform to the National Association of Broadcasters certification for AM tuner performance - called AMAX (AM at its maximum) - and available only to NAB members (Denon were fulfilling a NAB commission) - the tuner is now being made available to the audiophile market (suggested price: \$650).

"To get AMAX certification," writes reviewer Leonard Feldman, "a tuner must have frequency response from at least 50 Hz to 7.5 kHz, with correct NRSC de-emphasis; it must also have automatic noise blanking to reduce impulse noise, manually or automatically selectable audio bandwidth, connections for an external AM antenna [the use of which it is hoped & presumed won't result in overloading - lc], and the capacity to pick up all stations on the newly expanded AM band (now 540 to 1,700 kHz). If stereo is included, an AMAX tuner must be able to decode the Motorola developed C-QUAM system [the industry "de-facto" standard, reportedly inferior to the Kahn system]..."

Rather than selectable IF bandwidth, the AM section "has selectable audio bandwidth; the "Wide" setting has a rated bandwidth of 7.5 kHz, while the "Narrow" setting varies automatically with signal strength, narrowing as far as 3 kHz when conditions call for it," Noise blanking is provided.

In lab measurements the tuner's AM frequency response is down only 3 dB at 9.2 kHz. In the "Narrow" mode AM frequency response exceeds 6 kHz "for a 10-mV" [millivolt, presumably] signal. Low frequency response down 3 dB at 50 Hz.

AM distortion specs measured = to/better than the published spec.

AM stereo channel separation measured slightly over 24 dB at 1 kHz independent of the audio bandwidth; 23 dB separation at 100 Hz; just over 8 dB at 6 kHz. All measurements made with 10-mV signal.

Turning off the test equipment and actually listening, Feldman observed that, with appropriate orientation of the AM loopstick he logged 26 acceptable signals (reviewers consistently report the number of stations - usually FM, in this instance both AM & FM - they receive in acceptable quality without indicating their QTH; e.g. receiving 26 acceptable signals in the NYC area would be no great feat). "A few of the stations exhibited less interference when I switched to the narrow-band mode, but even then, audio fidelity was better than I've heard from an AM tuner in many years. (Back in the 1940's and 1950s, AM receivers - then in the majority - sounded a lot better than most AM tuner sections do today [tell me about it]. Perhaps the most startling revelation occurred when I tuned in to a classical music station on the FM band that also simulcasts on AM [would almost have to have been WQXR, NY, before they disappeared from AM]. This enabled me to switch back and forth between them while listening to the same program. I know you may find this hard to believe [I don't], but to my ears (and to those of several visitors in my lab where these tests were going on), the audio quality of the AM transmissions actually seemed better than that of the FM band!"

Wonder what kind of results could be yielded from shortwave with a shortwave converter hooked up ahead of the Denon's AM tuner? Could be done only if, when using the external antenna terminals, that is the only means of entry of signals into the receiver's "front end". Would be accomplished only if it was possible to switch select between the loopstick and an antenna coil to be used for external antenna connection - probably not the case.

SPEAKING OF SUPER RADIOS, a topic of discussion of late has been the GE SUPERADIO III, the latest version of what has been a superior performing AM/FM portable. But it seems, by nearly all accounts, the III's performance, considering the reputation of its predecessor, has been less than might have been expected - the disappointment being in regard to AM band performance. TIM HENDEL (FL), who, via ownership, has had experience with both the SR II & III writes:

In order to properly evaluate this radio [SUPERADIO III], I point out its price, its intended audience, and ask anyone to compare it with what else is available to the general public at that price [nominally \$59, sometimes discounted to \$39], or even on the tuner sections of the most expensive stereo units, which are absolutely lousy on AM.

I find the Superadio III to be less sensitive on AM than the II, but still not too bad. The circuit itself is quite noisy, thus cutting down some on effective sensitivity. I have never tried it with an external antenna. If you want to be able to tune the 1610-1700 portion of the AM band, it's a good bet.

I also find the Superadio III to be amazingly "bullet proof" on FM. What I mean is this: I have a couple of powerful FM transmitters located so close to me that I sometimes get interference

on my tape recorders, not to mention across the shortwave bands of many cheap portables. Both my Sangean ATS-181CS and Panasonic RF-2200 are totally overwhelmed on FM by these two powerful transmitters. Yet, on the Superadio III, I can fully extend the antenna and tune across the entire FM band, and not have much splatter at all. As to how it performs in weak signal areas, I'll have to wait until I take it to the country some day.

As I have said, the III is not quite as sensitive as the II on AM. It also tends to desensitize when tuned to a weak signal 10 kHz away from a strong one. Still, as I have said, it's not bad.

The III has two bandwidths on AM. Of course, the above observations assume you are using the narrow bandwidth. The wide bandwidth is only for local signals, but it really does give good fidelity on AM. Some stations sound a bit harsh when listening in the wide mode, but I think this is due as much to the processing used by the stations as to the radio itself. On some AM stations, the Superadio III sounds pretty good.

No, it's not a dedicated DX machine. It's not a good one on AM as the Panasonic RF-2200 (which I consider to be maybe the best portable ever on AM), but it's not bad, and a worthwhile addition to one's radio collection, especially if you travel, and like to observe the local radio scene.

The Panasonic RF-2200 - not digital readout but with an accurate, closely readable, analog dial - was the first AM/SW/FM portable I ever encountered that could really be called a RADIO; was better than Pan's digital readout offerings that followed it. Tim later writes that "When I bought the Superadio III, there was an address in the manual, and buyer comments were solicited. I wrote a letter saying that, in general, I was happy with the radio, but suggesting a few improvements." For his trouble, Tim got a polite, we're sorry you don't like it, response, but no suggestion his comments would have any concrete effect. Another view on the Superadio III is offered by W. FRANK CASTON [W4VC] (SC):

I am the owner of a GE Superadio III. On [WOR #676] a listener apparently reported to you [gh] that this radio was worse than the previous model of the Superadio. It has been my experience that this is an excellent radio and is a good value for the money.

Costing approximately \$55, this radio has at least two features that make it a superior radio for AM reception in areas of weak signals/high interference. It has a large loopstick (approximately 7 inches) and external antenna terminals. I use mine to receive weak AM broadcast signals at lunchtime when I am working in electric substations (my job is with a local electric utility) and it is the only radio I've found that will pick up certain weak signals in a high noise environment. The electric substations at which I work have lots of corona discharge noise plus harmonics generated by station battery chargers. Normal radios will receive only the strongest signals, but the Superadio III works well in this noisy environment. This radio is priced only slightly higher than a Panasonic boom box and with comparable audio (though not in stereo). If the previous model of the Superadio is better than the latest (I purchased mine in December), I would not hesitate to recommend it.

The only negative comment that I have with this radio is that it is manufactured in Communist China (PRC), possibly by slave labor.

...I wish other radio manufacturers of AM/FM/Shortwave portable radios would be encouraged to follow the lead of the designers of the Superadio III and make the engineering design effort to include such features as external antenna terminals, better internal antennas, and more powerful RF stages.

Relative to a lot of other radios, despite reports of its shortcomings, the SR III is likely pretty good. But for those who judge radios in more absolute terms... A negative review of the SR-III by GERRY THOMAS appears in both the NRC DX News and IRCA DX Monitor. Based on an examination of two samples, having had high expectations, Gerry's conclusion is "the Superadio III is a bummer". Initially he was struck by the unusual designation of the selectivity positions as "WIDE" & "NORMAL" - the selectivity feature being called "AM Accent". But there were comforting assurances, tuned RF stage, large ferrite rod...

Upon turning on the receiver he noticed a high hiss level on all but the strongest stations; dial calibration was off consistently 30-40 kHz; images from a strong local were also to be heard - none of these situations occurring with the SR II. Alternating selectivity positions revealed even more noise in the "Wide" position with no appreciable improvement in audio fidelity.

An examination of what the box contained (having first noticed the PRC manufacture) revealed only one circuit board (the II has RF/OSC & IF/AF sections isolated on separate boards). "The second big surprise was THERE WAS NO VARIABLE CAPACITOR!!! THEY WERE USING VARIATOR DIODES TO TUNE THE THING! Now, it's definitely possible to design a perfectly adequate radio using varactor diodes but the engineers who put the Superadio III together flunked the course. Things were becoming clearer - the radio was not designed for performance, it was designed for profit margin." Understand Gerry's disgust at a cheap pot controlling varactor diodes for tuning instead of a nice, metal multi-ganged tuning capacitor to track the RF, Mixer & Oscillator stages (more expensive, of course) - love those big brass tuning caps in my Hammarlunds. As for the AM IF stage - no ceramic filters;

"wide" selectivity evidently being achieved by switching in a resistor to lower the "Q" of an IF transformer. Attempts at touching up alignment were only minimally successful. Excellent FM audio & AFC but didn't assess as to FM sensitivity. Tim (vide supra) gave the radio good marks in regard to FM band performance.

Perhaps a major part of an explanation for the reported poor performance of the Superadio III has been reported in the "Technical Talk" section of DX Ontario (March '93). When the III became available, DAVE MAUNDER (Newfoundland) obtained one. Making a side-by-side comparison with his II, using only the ferrite rod antenna in each, revealed the III to be wanting - high background noise and reduced sensitivity. "So" (scripsit Dave) "I disassembled the Superadio III to do a little 'tweak-ing', and was surprised to find that performance instantly improved when the two halves of the cabinet were separated by the length of the speaker wires. The noise level dropped drastically, and the sensitivity came way up. I could now easily hear VOUS, a 50 watt U.S. Armed Forces station in Argentina, Nfld, on 1480 kHz, and St. Pierre-Miquelon on 1375 was easy. (This at 1 PM local time at my home about 40 miles from St. John's.)

"But when I reassembled the radio, performance deteriorated to the original level. There seemed to be some kind of interaction between the speakers in one half of the case and the circuitry in the other half. I suspected that it was the strong magnetic field saturating the antenna's ferrite core, so I wrote GE (c/o Thomson Consumer Electronics) asking if they had a fix."

Writing to TCE yielded better results for Dave than was the case with Tim, because "They seemed aware of the problem, and suggested simply reversing the two leads from the circuit board to the speaker unit. I was skeptical, but I tried it and the cure worked perfectly. Not only is the GE Superadio III a hot MW-Band receiver (British, German and many other European MW stations are audible), but, on strong signals, the audio in the "wide" position is exceptional...indeed very close to FM quality in range and clarity"

So the GE Superadio III may not be a loser after all. Anyone having a unit displaying the reported deficiencies should certainly take note of the above and try the suggested lead reversal.

MORE FROM TIM HENDEL: THE DXC-100 (manufactured by the American Electrola Co., 8033 Bennitt St., Pittsburg, PA 15221 [Ph. 412 242-6569]). Sold by the "For the People" network, White Springs, FL. -Is this the same radio designated World Access Radio 8A on p. 8 of the Universal Catalogue (93-01)?

As you know [vide previous letter], back in December, Chuck Carter [Harder?] on "For the People" was announcing a desk-top digital shortwave radio for about \$200. He said it was "American made" and in a wooden cabinet.

I was immediately curious, so I called their number and was assured that, indeed, this was not some Sangean in a wooden box, but a radio "designed and manufactured" in the USA. It was being made by American Electrola Company of Pittsburg, PA. I was intrigued, and decided to order the radio. I figured I could sell it if I didn't want to keep it, and that it might become a collector's item in the future.

I ordered the radio in about mid December. I was told that there would be some delay, and that my set would be shipped just after New Year. I received it on February 24.

I opened the box and found, indeed, a radio in a wooden cabinet, 1950s style. In fact, even the box was packed, not with styrofoam, as are most electronic products, but with pieces of folded cardboard, as I imagine electronic products would have been packed 40 years ago.

I found a very plain, box like, wooden cabinet. about 12" long, 7" high, and 5" deep. There was a volume knob and a tuning knob, and nothing else to be felt at all. The whole control panel is a membrane keypad, such as is often found on microwave ovens or VCRs. Of course, this is totally useless to a blind person, like me, and I often wonder how many sighted people have trouble with these membrane keypads, especially if one has rough hands or lessened sensitivity in the finger tips, due to hard manual labor, burns or other injuries. At this point, I decided to have a friend help me get the radio up and running, just so that I could judge its performance. Then I would either mark the touch places with raised dots, or return the radio and ask for a refund. In fact, I found that I could feel the little stubs under the places where you are supposed to press - not easy, but good enough for me to test the set.

The radio covers mediumwave, FM, and "shortwave" - actually the range from 100 kHz to 29.999 MHz. The tuning knob is very nice. It has pronounced detents, which can be easily felt. The knob is comfortable to hold, so that a person with arthritis, or other hand dexterity problems, could easily turn it. The tuning steps are 200 kHz on FM (switchable to 100 kHz), 10 Khz on mediumwave, and 5 kHz on shortwave (changeable to 1 kHz).

Judging from the hollow under the cloth speaker grille, the speaker must be about 4" in diameter. Sound is pleasant, not exceptional, but not bad either. There is a mini-headphone jack, wired to feed a stereo head set, although sound is mono, even on FM. Sound on shortwave through the headphones is quite good indeed.

The radio has pre-sets (memories), scanning functions, and a timer and clock. I didn't try out these functions.

I was quite annoyed to discover one of those ubiquitous cube-shaped power packs. Though I have

opened the case, I'm sure there must be room inside to provide all of the electronics to enable the radio to use a standard line cord. And the power pack is "Made in China!" [Thought FTP would sell only Made in USA products.]

Now the kicker - the radio appears to be "receiving" two frequencies at the same time - 10 kHz apart! No, I don't mean that the radio is so broad banded that it lets in stations 10 kHz away. Let me explain.

Say you are tuned to 7435. You tune in 7430. You hear the radio's sound as you would on the very edge of a station, the sound you would expect from a radio with moderate selectivity. Then you tune to 7425. You now hear the station on 7435, just a little weaker than before, but properly tuned in. In other words, the set is, at all times, receiving not only the frequency it is tuned to, but a frequency 10 kHz higher.

This is obviously some kind of alignment problem [I would suspect a frequency synthesizer defect -lc], and I don't know whether it occurs in all samples, or only in mine. Even if everything else were satisfactory, I would still return the set due to this alignment problem, and ask for a replacement. As it is, I think I shall simply ask for a refund.

So, I guess this was a good try for American technology, and it will be interesting to see if this company tries anything else, but meanwhile I'll be quite happy with my imports.

Has anyone else had any experience with this radio? Is the problem in Tim's unique? Sounds like an "unclean" frequency synthesizer.

SOME OBSERVATIONS ON THE JPS NIR-10 DIGITAL SIGNAL PROCESSOR (NOISE REDUCTION) UNIT [JPS Communications, P.O. Box 97757, Raleigh, NC 27624, price \$349.95.], by BOB TARTE (MI):

I noticed in the current issue of Monitoring Times that the JPS NIR-10 Noise/Interference Reduction Unit garnered the usual noncritical review of advertisers to that magazine (the exceptions are reviews by Larry Magne, of course). I bought an NIR-10, but sent it back after only one day. My decidedly non-technical observations are as follows:

The two features which induced me to try the NIR-10 were the noise reduction circuit, a digital circuit designed to reduce or eliminate all repetitive-type signal information (white noise, RTTY, etc.) as well as an automatic notch filter. I've been listening to the Amateur Bands quite a lot lately, so that is where I first tried the unit out. The digital electronics were interesting and showed some potential for bringing a signal forward out of the noise, but the results were not dramatic, since in many cases this noise was converted into equally annoying digital hash. I might have gotten better at adjusting the NIR level and had better luck with this end of the unit if my patience was not tried by two other shortcomings, one decidedly major. Minor one first... The automatic notch filter may indeed eliminate heterodynes, but my experience was it did so by leaving a gaping hole in the audio spectrum. Sure, I'd rather hear a blank spot than an annoying whine, but this does not necessarily help readability.

It was on the shortwave broadcast bands that I had the greatest hopes for the NIR-10. Botswana on 4,830 kHz is often flattened by a loud heterodyne here (from 4,832 kHz perhaps?), perfect test for the automatic notch filter. Again, the heterodyne was all but eliminated, but that didn't mean I could copy Botswana any better since a deep null (like a carrier exactly on top of 4,830 kHz) took the heterodyne's place. I did find, as on the Ham bands, that the NIR section helped bring signals up out of a noisy background, and I would have even suffered through the way the NIR-10 parsed and clipped musical information but for a major drawback to the unit.

Intriguing as the digital section might be, the analog section is just plain poor. In order to use the NIR-10, you have to route the audio of your radio through the unit's built-in audio amplifier, which downgraded the fidelity of my Drake R-8 to about the level of an ICOM R-70 or worse. You cannot bypass this amplifier (no line-out jack on the back, for example) - not even in BYPASS mode. This means that if I didn't want to have to keep attaching and detaching the NIR-10 from my receiver/external speaker, I had to continually put up with audio far below par of what the R-8 typically delivers.

Is the trade off between frequency response and digital filtering worth it? I experimented listening to a noisy signal on 90m with and without the NIR-10 connected to my radio. I found that the benefits of the NIR-10 with noise reduction circuitry switched were so compromised by the audio output stage, that I probably did just as well without the unit, given the amount of sonic information I was losing. I did write the manufacturer with my complaints and asked for a response, but received none. The company did return my money very quickly, however, which was appreciated.

It is to be hoped, assumed, that the "digital signal processing" which is the heart of the WJ-8711 is of a superior and more usable order than is indicated above. "DSP" may mean as little or as much as the term "HQ" means in regard to VCRs.

SOME OBSERVATIONS ON THE DRAKE R8 BY MARC A. MURISON (from computer BBS via Larry Nebron):

AM Synchronous Detection: I don't know much about the difference in SD on various receivers, but it's priceless on the R8. It clears up distortion from fading on strong signals, making them actually pleasant to listen to; and on weak signals it seems to cut out some of the noise as well as

improve selectivity. I'd say it's essential.

Passband Filtering: Choice of 5 bandwidths ranging from 6 kHz to 500 Hz. In addition, the passband is adjustable, which I find comes in handy for removing QRM above or below the station you're listening to. It amazes me how this, coupled with synchronous detection and the notch filter, can pull a signal out of the most horrendous soup.

Notch Filtering: I find the notch filter on the R8 difficult to use in some situations (this may be due to inexperience, though). Often I find it takes some hunting to zero in on the offensive heterodyne. Other times it's easy. Depends on the nature of the interference, I guess. Anyway, it works, it's wonderful. If you listen for enjoyment, or if you're after DX, it makes a very big difference.

People have complained about the ergonomics of the R8. Personally, I kind of like the way they've done it. All the info is on the (green, backlit) LCD, which I like. I do agree about the lack of tactile feedback on the buttons - it stinks. The Drake engineers should take a good look at the buttons on their HP calculators! Overall, though, I'm a very happy camper with the R8. I'm especially pleased about the audio quality (swl that's pleasing to listen to!, especially if you hook up a Minimus 7 speaker to it), the ability to pull stuff out of the muck, the ability to store everything in the 100 memories, and the sensitivity.

OBSERVATIONS BY WILL MARTIN (MO) ON THE MAGNAVOX/PHILIPS D-1875:

Though I had no real need for it, I bought a Magnavox (really relabelled Philips) D-1875 portable shortwave radio... This is an analog set with no digital display. They are carried by most of the mailorder shortwave suppliers at \$69.95, and a guy here at work who also likes shortwave found them at his local (Illinois) Target being closed out at \$49.95,... he offered to get me one, so I took him up on the offer. The review of this radio in the '93 Passport describes it as "mediocre", but I think this is too harsh. I've found it to work quite nicely, and be enjoyable to use. I guess having spent my recent years using only digital radios made me forget the pleasure of analog-knob bandscanning. This little set only tunes the major shortwave broadcast bands (plus FM, AM and LW) in separate switchable bands, with a slide-rule dial, and has no SSB capability, but it seems to pick up a reasonable assortment of signals. The speaker is small so sound quality is not great; an earphone helps (but unfortunately they did not use a stereo jack, so using regular walkman-type phones gets sound in one channel only unless you use an adapter). Anyway, if you see one locally closed out cheap, I wanted to pass the word that the radio is probably worthy of consideration.

Note that Universal's used-and-demo-gear list had some of these a year ago at prices lower than the \$50 mentioned above...

And another note - for some strange reason, the dial scale has a "linear" logging scale in the place for the 25 MHz broadcast band, but the radio WILL tune that frequency range when switched to that position - I picked up CB signals at the position appropriate for 26-27 MHz when the radio is switched to that band. Most odd...

The FM performance of this Maganvox/Phillips D-1875 was its poorest point [weak sensitivity/image-overload hash...inferior to Will's Superadio II and other of his sets - probably to be expected].

SOME OF THE BEST AM/FM portables ever marketed were offerings by CHANNEL MASTER (best known for their television antennas) in the late 1960s & early 1970s. These were among the first quality imports of this type of product from Japan - actually superior to Panasonic & Sony offerings of the time - e.g., the 14 transistor model 6518, the "supre fringe" model 6515 and the AM/SW model 6523. Good sensitivity & selectivity. I remember an AM/Police Band portable that had about the best "AM band" performance - sensitive, very selective - I've ever encountered in a smallish portable. But the quality of the CM "consumer electronics" line deteriorated and had disappeared by the mid-'70s. Any of the best CM radios still around are definitely "collectors items".

THERE IS MORE MATERIAL AT HAND. An especially interesting item from Play DX #732 is a compilation of comparisons of performance in a number of respects of three receivers, the ICOM R-9000, the Drake R-7A (remember that one?) and the JRC NRD 525. Provided by Jean Pierre Penaud who aurally experienced the three receivers. Of more use for a purchaser today would be a comparison chart involving the R-9000, NRD-535 and the Drake R8. Anyone out there who could provide us such an assessment based on an experienced SWL/radio user's judgement - albeit subjective?

[In this column I have dropped the editorial "we" in favour of the first person singular; the use of the former is really an affectation.]

because it speaks / & emanates other human aural expression /
a radio seems - tho' we know it is not (?) - invested with anima -
each radio having about it / as we come to know it thru use
a kind of personality / an uniqueness of being

BROADCASTS IN ENGLISH audible in North America
compiled by John Norfolk

ALASKA KNLS NAE
0800-0900 C 9615
1300-1400 C 9615

ALBANIA R Tirana
0130-0200 B 11840 9580
0230-0300 B 11840 9580
2200-2230 C 11825 9760

ALGERIA RTVA
1600-1700 C 15160 11715
1900-2000 C 17745 11715 9535

ARGENTINA RAE
0200-0300 C 11710 Tue-Sat

ARMENIA R Yerevan
0250-0300 C 10344° 11790
2145-2200 C 11960 11920 9450
2245-2300 C 11980 9480

AUSTRALIA R Australia
0000-0030 C 15365
0030-0200 C 21740 17795 15365
0200-0730 C 21740 17795 17715 15365
0730-0800 C 6020
0800-0900 A 9580
0900-1000 A 13605 9580
1000-1100 A 13605 9580 5995
1100-1200 A 13605 9710 9580 9510 7240 6080 5995
1200-1300 A 9580 6020 5995 [& 9710 7240 6080
-1230]
1300-1700 B 11800 9580 [& 5995 -1430]
1700-fade C 11910 11880 9580
2200-2300 C 17795
2300-2400 C 21740 17795

AUSTRIA R Austria Int'l
0130-0200 B 9880 9870 6015
0330-0400 B 9880 9870 6015
0530-0600 A 6015
0630-0700 A 6015
1130-1200 C 13730
1330-1400 C 17730 15450
1630-1700 C 11780

BANGLADESH R Bangladesh
1230-1300 C 15208

BELGIUM R Vlaanderen Int'l
1130-1155 B 17515 15540 Sun
1300-1330 B 17515 15540 Mon-Sat
2100-2125 C 9905 [& 5910 Sun only]
2330-2400 B 13655 9930

BHUTAN BBS
0900-1000 D 6035 Sun
1415-1500 D 5025 Mon-Sat

BRAZIL R Bras
1200-1320 C 15445

BULGARIA R Bulgaria
0000-0100 B 15330 11720
0300-0400 B 11765 9850
1030-1200 C 17830 17660 13670
1730-1900 C 13670 11720
2000-2100 C 15330 11720
2145-2315 B 15330 11720

CANADA CBC
24 hours C 6070 [CFRX Toronto]
24 hours C 6005 [CFCX Montreal]

CANADA R Canada Int'l
0100-0200 A 11940* 11845* 9755 9535* 6120

[*Tue-Sat -0130]
0200-0300 A 11940 11845 9755 9535 6120
0400-0430 C 15445 15275 11905 9650
0500-0530 A 17840 11775 9750 7295 6150 6050
1200-1300 A 17820 11855 9635 Mon-Fri
1230-1300 C 15195 9660
1300-1600 A 17820 11955 Sun
1330-1400 B 21455 15325 15315 11935 11795 9535
[& 21710 17895 17820 Mon-Sat]
1630-1700 C 9555 7150
2030-2130 B 17875 17850 17820 15325 13670 13650
7235 5995
2200-2230 A 15305 13670 11875 11730 11705 9755
7195 5995 5960
2230-2400 A 13670 9755 7195 5995 5960 [Sat-Sun
-2300]

CHINA China R Int'l
0000-0100 B 11715 9770
0300-0400 B 11715 9770 9690
0400-0500 B 11840 11680
1200-1300 C 15210
1300-1500 C 11855
1600-1700 C 15170 15130 11575

COSTA RICA AWR [9725 varies]
1100-1300 B 13750 9725
2300-0100 B 9725 5030

COSTA RICA R For Peace Int'l NAE
0000-1200 B 21465° 7385 7375°
1200-2400 B 21465° 7385

CROATIA Croatian R Zagreb
2103-2113 C 13830 9830 5920

CUBA R Havana
0000-0200 A 9815° 6010
0200-0400 A 13660 6010
0400-0500 A 6180 6010 [& 13660 -0430]
0500-0700 A 9510
2100-2200 B 17760
2200-2300 B 6180

CZECH REPUBLIC R Prague
0000-0027 B 11990 9810 9485 7345 5930
0100-0130 B 11990 9485 7345
0300-0330 B 11990 9810 9485 7345 5930
0400-0430 B 17535 13715 11990 9810 9485 7345

ECUADOR HCJB
0030-0430 A 21455° 17490° 15155 9745
0430-0500 A 21455°
0500-0700 B 21455° 17490° 11925
0700-0730 C 21455° 17490° 15270 11735
0730-0830 C 21455° 17490° 15270 11925 11735
9745
0830-1130 C 21455° 17490° 11925 9745
1130-1430 B 21455° 17890 17490° 15115 11925
1430-1600 B 21455° 17890 17490° 11925
1600-1630 B 21455°
1630-1800 B 21480 21455° 17790 17490° [Sat
-1730; Sun -1745]
1800-1900 B 21455° [Sat 1730- ; Sun 1745-]
1900-2000 B 21480 21455° 17790 17490°
2000-2130 B 21455°
2130-2200 B 21480 21455° 17790 17490°
2200-2430 B 21455° NAE

EGYPT R Cairo
0200-0330 B 11825 9475
1215-1330 C 17595
1630-1830 C 15255
2030-2200 C 15375

2115-2245 C 9900
 FINLAND R Finland [Freq info
 0145-0215 B 15185 11755 1-800-221-9539
 1130-1200 B 15400 11900 Mon-Fri in the USA]
 1230-1230 B 15400 11900 Mon-Sat
 1300-1355 B 15400 11900 Sun
 1330-1400 B 15400 11900 Mon-Sat
 FRANCE R France Int'l
 1230-1300 B 21645 21635 17575
 1400-1500 B 17650 15405 11910
 1600-1700 B 17850 17795 17650 17620 15330 12015
 11845 11705
 GEORGIA Georgia R
 0830-0848 C 11910 [Sun 0730-0748]
 GERMANY Deutsche Welle
 0100-0150 A 15105 13770 13610 11865 11810 9765
 9700 9565 6145 6085 6040
 0200-0250 C 15560 15185 13790 11965 11945 9690
 9615 7285
 0300-0350 A 15205 13790 13770 13610 11890
 11810 9700 9640 6145 6085
 0400-0450 C 13770 13610 11765 11705 9765 9565
 9565 7225 7150
 0500-0550 A 13610 11705 9670 9695 9515 6130
 5960
 GREECE V of Greece
 0130-0150 B 11645 9420 9380 Mon-Sat
 0340-0350 B 11645 9420 9380 Mon-Sat
 1335-1345 B 17515 15630
 1530-1540 B 17525 15645 15630 Mon-Sat
 GUAM KSDA
 0200-0300 C 13720 Sat-Sun
 1600-1700 C 11980
 1700-1900 C 13720 Sat-Sun
 2300-0200 C 15610
 GUATEMALA TGNC
 0300-0430 C 3300 [Sun 2345-]
 HUNGARY R Budapest
 0200-0300 B 15220 11910 9835 5970
 2100-2200 C 11910 9835 7220 6110
 INDIA All India R
 1000-1100 C 21735 17895 17387 15050
 1330-1500 C 15120 11760
 1745-1945 C 15075 11935 11860 11620 9950 7412
 2045-2230 C 15265 11715 11620 9950 9910 7412
 2245-2445 C 15145 15110 11785 11745 9910
 IRAN R Tehran
 0030-0130 C 15260 11790 9022
 1930-2030 C 15260 9022
 IRAQ R Iraq Int'l
 1300-1600 C 15250
 1800-2245 C 11805 NAE
 2200-0300 C 17940 15180 NAE
 ISRAEL Kol Israel
 0400-0415 C 11587
 1300-1325 C 17575 15650 15640 11603 11587
 Sun-Thu
 1700-1715 C 17575 15650 15640 11603 11587
 1900-1930 C 17575 15650 15640 11603 11587
 2130-2200 B 17575 15650 15640 11603 11587
 ITALY RAI
 0100-0120 B 11800 9575
 JAPAN R Japan
 0100-0200 A 17845 17775 17810 15195 11860 5960
 0300-0400 C 17810 15230 15210 [& 15325 11725
 -0330]
 0500-0600 B 15240 11910 9725
 1100-1200 B 15240 11910 6120
 1400-1500 B 11865 11835 11735 9750 9535
 1500-1600 B 15355 11865 11815 9750
 1700-1800 C 17775 11865 11815 9750
 1900-1930 C 11875 11865 11815 9750 9640
 2100-2200 C 15430 11925 11815 9750 9640
 2300-2400 C 17810 15430 7140 6125 6050
 KOREA NORTH R Pyongyang
 0000-0050 C 15130 13760 11335
 1100-1150 B 11335 9977 6576
 2300-2350 C 13650 11700
 KOREA SOUTH R Korea
 0100-0200 C 15575
 0600-0700 C 15155 11945
 1030-1100 B 11715
 1100-1130 B 9650 6145 (?)
 1200-1300 B 9640
 1400-1500 C 9570
 KUWAIT R Kuwait
 1800-2100 C 13620 [may start at 1730]
 LITHUANIA R Vilnius
 1900-1930 C 9710
 2130-2200 C 9710
 2300-2330 B 11750 Mon-Fri
 MALAYSIA V of Malaysia
 0555-0825 C 15295 9750 6175
 MALTA V of Mediterranean
 0600-0800 C 9765
 MONACO TWR
 0649-0820 B 9480 [Sun -0845]
 MONGOLIA R Ulan Bator
 0910-0940 D 12015 11850 Mon/Thu/Sat
 1200-1230 D 12015 11850 Mon/Thu/Sat
 1445-1515 D 13780 7260
 1940-2010 D 11850 11790
 NETHERLANDS R Netherlands
 0030-0325 C 13700 11655 9860 [& 9825 -0125;
 12025 0130-]
 0330-0425 A 9590 6165
 0730-1025 B 11895 [& 9630 -0825; 15470 12065
 9720 0930-]
 1030-1125 C 15470 12065
 1130-1325 C 9650 5955
 1330-1625 C 17610 13770 9890 [& 15145 -1425;
 15150 1430-]
 1730-2025 C 21590 [& 21515* 7120 6020 -1925;
 17605 1930-] [*replaced by tempo-
 rary 17655 late May-early June]
 2330-0125 A 6165 6020 [& 11835 0030-]
 NETHERLANDS ANTILLES TWR Bonaire
 0255-0400 A 11930 [& 9535 0300-] ends July 1
 1055-1230 A 15345 11815 ends June 30
 NEW ZEALAND R New Zealand Int'l NAE
 0659-1206 B 9700 (Wed -1230)
 1207-1649 B 9510 occasional
 1650-1849 C 9675 Mon-Sat
 1850-2136 C 11735 Mon-Sat
 2137-0658 B 15120
 NIGERIA V of Nigeria
 0500-0700 C 7255
 N MARIANA ISLANDS KHBI NAE
 0000-0400 C 17865 17555
 0400-0800 C 17780 17555
 0800-1000 C 17555 15665
 1000-1200 C 17555 13625

1200-1400 C 13625 9425
 1400-1600 C 13625 9530
 1600-1800 C 11580 9355
 1800-2000 C 9495 9430
 2000-2200 C 13840 9455
 2200-2400 C 15405 13625
 NORWAY R Norway Int'l
 0000-0030 B 9675 Mon
 0100-0130 B 9560 Mon
 0200-0230 B 11925 9560 Mon
 0300-0330 B 11865 9560 Mon
 0400-0430 B 11865 9560 Mon
 2300-2330 B 11795 9655 Sun
 PAKISTAN R Pakistan
 0230-0245 C 21730 17725 17640 15115 9515
 0800-0845 C 21520 17900 NAE
 1100-1120 C 21520 17900
 1600-1630 C 17725 15675 15555 15515 13590 11570
 1700-1800 C 15550 11570
 PALAU KHB NAE
 0800-1530 C 9830
 2000-0100 C 9830
 PHILIPPINES FEBC
 0000-0200 C 15450
 0900-1100 C 11690 9800
 1300-1600 C 11995
 PHILIPPINES R Pilipinas
 0230-0330 C 21580 17840 17760
 POLAND Polish R Warsaw
 1200-1255 C 11815 9525 7145 6135
 1500-1555 C 11840 9525 7285
 1700-1755 C 9525 7270
 1930-2025 C 9525 7285 7270 6135
 PORTUGAL R Portugal Int'l
 0130-0200 B 11840 9705 9570 Tue-Sat
 ROMANIA R Romania Int'l
 0200-0255 C 11940 11830 9570 9510 6155
 0400-0430 C 11940 11830 9570 9510 6155
 0632-0645 C 9510
 RUSSIA AWR Europe
 0200-0300 C 11835
 0700-0800 C 11835
 1200-1300 C 11835
 1900-2000 C 9835
 RUSSIA R Galaxy [may or may not be active]
 2100-2200 C 11880
 RUSSIA R Moscow [as monitored in OK June 11-12;
 by no means complete!]
 0000-0100 B 11840 11805 11790
 0100-0200 B 15425 11840 11805 11790 9765 9530
 0200-0300 B 15425 11840 11805 11665 9765 9530
 0300-0400 B 15425 13650 12070 11985 11840
 11665 9765
 0400-0500 B 15425 13650 12070 11985 11840
 9765 9750 9610 9530
 0500-0600 B 15425 13650 12055 11985 11790
 11690 11590 9765 9750
 0600-0700 B 15425 13650 12055 11985 9765 9750
 1500-1700 C 17760 17735 15290
 1700-1800 C 17760 17735 15290 12050
 1800-1900 C 17760 15290 12050
 1900-2000 C 17760
 2000-2100 C 15340 15150 11760 11730
 2100-2200 B 15355 15340 15290 11760 11750
 11730
 2200-2300 B 15290 11805 11750
 2300-2400 B 11840 11805 11750
 SAUDI ARABIA BSKSA
 1600-2100 C 9720 9705
 SERBIA R Yugoslavia
 0030-0100 B 11870 9580
 0130-0200 B 9580
 1130-1200 C 21605
 2100-2130 C 9505
 SEYCHELLES FERA
 0500-0553 C 17750 Fri
 1500-1555 C 11710 [Sun -1558]
 1500-1600 C 15330 9810 except Sun
 SLOVAKIA R Slovakia Int'l
 0100-0130 B 9810 7310 9530
 1800-1830 C 9605 7345 5930
 SOUTH AFRICA Channel Africa
 0200-0400 C 5960 [& 3995 0300-]
 0400-0500 C 7230 3995
 0500-0600 C 9695
 0600-0700 C 15220
 1000-1100 C 17805
 1100-1200 C 9730
 1600-1700 C 15220 4945
 1700-1800 C 11750 4945
 SPAIN Spanish National R
 0000-0200 A 9530
 0500-0600 A 9530
 1900-2000 C 15375
 SRI LANKA SLBC
 0445-0515 C 15425 9720 Tue
 2330-2400 C 15425 Mon
 SUDAN Nat'l Unity Radio
 1500-1530 C 9165
 SWEDEN R Sweden
 0200-0230 B 11705 9695
 1230-1300 C 21500 15240
 1500-1530 B 21500 15240
 SWITZERLAND Swiss R Int'l
 0000-0030 B 17730 12035 9885 9650 6135
 0200-0230 A 12035 9885 9650 6135
 0400-0430 A 13635 12035 9860 6135
 1700-1730 C 17635 15430 13635 9885
 2000-2030 C 15505 13635 12035 9885
 2200-2230 C 12035 9885 9810 5995
 SYRIA R Damascus
 2005-2105 D 15090 12085 9950
 2110-2210 D 15090 12085 9950
 TAIWAN Voice of Free China [via WYFR]
 0200-0400 A 9680 5950 [& 11740 -0300]
 0700-0800 A 5950
 2200-2300 A 21720 17750
 THAILAND
 1130-1230 C 9655 4830
 TURKEY V of Turkey
 0300-0350 C 9445
 2000-2050 C 9445
 2200-2250 C 11895 9445 7185
 UKRAINE R Ukraine Int'l
 0000-0100 B 15580 15195 9640 9550 7240
 2100-2200 C 9640 9550 7240 7150 6090 6070 4825
 UNITED ARAB EMIRATES Abu Dhabi
 2200-2400 C 15315 15305 11885
 UNITED ARAB EMIRATES Dubai
 0330-0400 C 17890 15400 13675 11945
 1600-1640 C 21605 15320 13675 11795

UNITED KINGDOM BBC

0000-0230 A 15260 11750 9915 9590* 7325 6175
 6005 5975 [*includes Caribbean
 service repeat Tue-Sat 0145-0200]
 0230-0330 A 15260 11750 9915 7325 6175 6005
 5975
 0330-0430 A 9915 7325 5975
 0430-0500 A 5975
 0500-0730 A 9640 5975
 0730-0815 A 9640
 0900-1100 C 15190
 1100-1130 A 15260 15220 9515 6195 5965
 1130-1200 A 15260 15220 9515 6195 [& 5965 Sat-
 Sun]
 1200-1300 A 15260 15220 9740 9515 6195
 1300-1400 B 15260 15220 11820 9740 9515 6195
 1400-1500 B 17840 15260 9515 [& 11820 9740 Sat-
 Sun; 6195 -1430]
 1500-1600 B 17840 9515 [& 15260 Sat-Sun]
 1600-1745 B 15260 9515 [& 17840 -1615]
 1745-2000 C 15070 12095
 2000-2100 B 15260 5975
 2100-2200 B 15260 9590 5975
 2200-2300 A 15260 11750 9915 9590 7325 5975
 2300-2400 A 15260 11750 9915 9590 7325 6175
 5975

UNITED KINGDOM BBC/Caribbean

2115-2130 B 21660 17715 15140 Mon-Fri

UNITED KINGDOM BBC/English by Radio NAE

0245-0300 A 15390 11965 9825 9515 6110
 1130-1145 B 21490 15190
 2315-2330 B 15390 11765 9825 9560 6110
 2345-2400 B 15390 11765 6110 5875

UNITED STATES KCBI [times may vary]

0300-0700 C 13720
 0700-1400 C 9815
 1400-2130 C 15375 or 15725
 2130-0300 C 15725

UNITED STATES KGEI

2200-2230 B 15280 Sun

UNITED STATES KJES [irregular]

1300-1500 B 11715
 1800-1900 B 9510

UNITED STATES KTBN

0100-1500 A 7510
 1500-0100 A 15590

UNITED STATES KVOH NAE

0200-0800 A 9785
 1500-0200 A 17775

UNITED STATES VOA/Africa

0300-0430 A 15115 11850 11835 9885 9575 7405
 6035
 0430-0600 A 15115 11850 9885 9575 7405 6035
 [& 15600 0500-]
 0600-0700 A 15600 15115 11925 11850 9885 9575
 9530 7405 6035
 1800-2000 A 17800 15580 15410 15320 13710 11995
 11920 [& 15495 1900-]
 2000-2100 A 21485 17800 15580 15495 15410 15320
 13710 [& 15160 -2030]
 2100-2200 A 21485 17800 15580 15495 15410 15290
 13710

UNITED STATES VOA/Americas

0000-0200 A 15205 15120 11580 9775 9455* 7405
 6130* 5995 [& 11695* -0100] [*dif-

ferent pgms 0030-0100 to the Carib-
 bean]

0200-0230 A 15205 15120 11580 9775 7405 5995
 Tue-Sat

1000-1200 A 15120 11915 9590

UNITED STATES VOA/Asia

0100-0300 B 7651°
 1000-1200 A 5985 [& 9760 1100-]
 1200-1330 B 15425 11715 9760 6110
 1330-1400 B 15425 9760
 1400-1700 C 15395 9760 9645 7215 6110 [& 9700
 1500-]
 1700-1900 C 15395 9700 9645 7125 6110
 1900-2000 C 15180 11870 9525
 2100-2200 C 17735 15185 11870
 2200-2400 C 17820 17735 15305 15290 15185
 11760 9770 7210

UNITED STATES VOA/Middle East

0400-0700 C 6873°°
 0800-1100 C 21570 21455 17770 15195 15160 11735
 [& 21455 -1000]
 1400-1500 C 15205
 1500-2200 C 19379°°
 2200-2400 C 11960 11985 9530 7195 7140 6160

UNITED STATES WGSN NAE

0000-0200 A 9850
 0200-0400 A 9350
 0400-0600 A 9840
 0600-0800 A 9455
 0800-1000 A 9840
 1000-1200 A 13770 Sat-Sun
 1200-1400 A 15665 Sat-Sun
 1400-1600 A 17510
 1600-2000 A 21640
 2000-2400 A 13770

UNITED STATES WEWN NAE [authorized; not all
 freqs will be used!]

0000-0100 - 15610 13710 9985 9370 7425 5825
 0100-0200 - 13710 9985 9370 7425 5825
 0200-0300 - 9985 9370 7520 7425 5825
 0300-0400 - 11715 11580 9985 9370 7520 7425
 5825
 0400-0500 - 9985 9370 9350 7520 7425 5825
 0500-0600 - 9985 9370 9350 7465 7425 5825
 0600-0700 - 13710 9985 9370 9350 7465 7425 5825
 0700-0800 - 13710 11580 9985 9370 7465 5825
 0800-0900 - 11580 9985 9370 7465
 0900-1000 - 9985 9370
 1000-1200 - 9370
 1200-1300 - 18930 15205 9370
 1300-1400 - 18930 17535 13710 9370
 1400-1500 - 18930 17525 17510 9370
 1500-1600 - 18930 17730 17510 13615 11735
 1600-1700 - 18930 17730 15695 13615 11735
 1700-2000 - 18930 15695 13615 11735
 2000-2100 - 18930 17840 15695 13615
 2100-2200 - 18930 17840 17760 15695 13720 13615
 2200-2300 - 17760 13615 11820 9370 7425 5825
 2300-2400 - 17760 17510 15650 11820 7425 5825

UNITED STATES WHRI #1 NAE

0800-1000 A 7355 [Sun -1100]
 1000-1300 A 9850 except Sun
 1300-1400 A 11790 [Sun 1100-]
 1400-1800 A 15105
 1800-2300 A 17830
 2300-0800 A 9495

UNITED STATES WHRI #2 NAE

0000-1300 A 7315
 1300-1700 A 9465 [Sun -1600]
 1700-2400 A 13760 [Sun 1600-]

UNITED STATES WINB NAE

1600-2100 B 15295
 2100-2245 B 15185
 2245-0330 B 15145

UNITED STATES WJCR

24 hours A 13595 7490

UNITED STATES WMLK NAE

0400-0700 B 9465 Mon-Sat
 1700-2000 B 9465 Sun-Fri

UNITED STATES WRMI NAE

2200-1300 - 9955 [tentative for June]

UNITED STATES WRNO NAE [schedule is erratic]

0300-0700 B 7395
 1500-2300 B 15420
 2300-0300 B 7355

UNITED STATES WSHB NAE

0000-0400 A 13760 5850
 0400-0600 A 13760 9455
 0600-0800 A 9840 7395
 0800-1000 A 13615 9455
 1000-1200 A 9495 9455
 1200-1400 A 13760 9495
 1400-1600 A 13760 [& 17510 Sat-Sun]
 1600-1800 A 17555 17510 Sat-Sun
 1800-2000 A 15665 [& 17555 Sat-Sun]
 2000-2200 A 17555 15665
 2200-2400 A 17555 9465

UNITED STATES WWCR #1 NAE

0000-1000 A 7435
 1000-2400 B 15685

UNITED STATES WWCR #2

0200-1200 A 5935
 1200-0200 B 13845

UNITED STATES WYFR

0000-0100 A 6065
 0100-0300 A 15440 9505 6065
 0300-0500 A 9505 6065
 0500-0600 A 13695 11725 11580 5985
 0600-0800 A 13695 11725 7355 5985
 1000-1200 A 5950 [& 11830 1100-]
 1200-1300 A 17750 11830 6015 5950
 1300-1400 A 17750 13695 11830 6015 5950
 1400-1600 A 17750 11830 11705 [& 6105 -1500]
 1600-1700 A 21615 21525 17750 15355 11830 11705
 1700-1900 A 21500
 1900-2100 A 21615 15355 [& 21525 17612½ 2000-]
 2100-2200 A 21615 21525 17612½ 15566
 2200-2300 A 21525 17612½

UZBEKISTAN R Tashkent

0100-0125 C 9755 9740 7325 5955
 1200-1225 C 17815 15295 9715 7285
 1330-1355 C 17815 15295 9715 7285

VATICAN Vatican R

0145-0200 C 9650 7125
 0250-0310 B 11620 9605
 0600-0625 C 7250 6245
 1730-1800 C 17730 15090 11625
 2000-2030 C 15090 11625 9645
 2245-2305 C 15090 11830 9600

VENEZUELA R Nat'l de Venezuela [time & length

0040-0055 C 9540
 0340-0355 C 9540

1140-1155 C 9540

1440-1455 C 9540

1840-1855 C 9540

2140-2155 C 9540

VIETNAM V of Vietnam

1000-1030 C 15010 12020 9840
 1100-1130 C 9840 7287
 1230-1300 C 15010 12020 9840
 1330-1400 C 15010 12020 9840
 1600-1630 D 15010 12020 9840
 1800-1830 D 15010 12020 9840
 1900-1930 D 15010 12020 9840
 2030-2100 D 15010 12020 9840
 2230-2400 D 15010 12020 9840

0000-0027 B Prague 11990 9810 9485 7345 5930

0000-0030 C Australia 15365

0000-0030 B Norway 9675 Mon

0000-0030 B Swiss R Int'l 17730 12035 9885 9650
 6135

0000-0050 C Pyongyang 15130 13760 11335

0000-0100 B Bulgaria 15330 11720

0000-0100 B China 11715 9770

0000-0100 B Moscow 11840 11805 11790

0000-0100 B Ukraine 15580 15195 9640 9550 7240

0000-0100 - WEWN authorized 15610 13710 9985
 9370 7425 5825 NAE

0000-0100 A WYFR 6065

0000-0200 A Havana 9815° 6010

0000-0200 C FEBC Philippines 15450

0000-0200 A Spain 9530

0000-0200 A VOA/Americas 15205 15120 11580 9775
 9455* 7405 6130* 5995 [& 11695*
 -0100] [*different pgms 0030-0100 to
 the Caribbean]

0000-0200 A WCSN 9850 NAE

0000-0230 A BBC 15260 11750 9915 9590* 7325 6175
 6005 5975 [*includes Caribbean
 service repeat Tue-Sat 0145-0200]

0000-0400 C KHBI N Mariana Is 17865 17555 NAE

0000-0400 B WSHB 13760 5850 NAE

0000-1200 B RFPI 21465° 7385 7375°

0000-1300 A WHRI #2 7315 NAE

0030-0100 B Yugoslavia 11870 9580

0030-0130 C Tehran 15260 11790 9022

0030-0200 C Australia 21740 17795 15365

0030-0325 C Netherlands 13700 11655 9860 [& 9825
 -0125; 12025 0130-]

0030-0430 A HCJB 21455° 17490° 15155 9745

0040-0055 C Venezuela 9540

0100-0120 B Italy 11800 9575

0100-0125 C Tashkent 9755 9740 7325 5955

0100-0130 B Prague 11990 9485 7345

0100-0130 B Norway 9560 Mon

0100-0130 B Slovakia 9810 7310 5930

0100-0150 A Deutsche Welle 15105 13770 13610
 11865 11810 9765 9700 9565 6145 6085
 6040

0100-0200 A Canada 11940* 11845* 9755 9535* 6120
 [*Tue-Sat -0130]

0100-0200 A Japan 17845 17775 17810 15195 11860
 5960

0100-0200 C S Korea 15575

0100-0200 B Moscow 15425 11840 11805 11790 9765
 9530

0100-0200 - WEWN authorized 13710 9985 9370 7425

5825 NAE

0100-0300 B VOA/Asia 7651°
 0100-0300 A WYFR 15440 9505 6065
 0100-1500 A KTBN 7510
 0130-0150 B Greece 11645 9420 9380 Mon-Sat
 0130-0200 B Tirana 11840 9580
 0130-0200 B Austria 9885 9870 6015
 0130-0200 B Portugal 11840 9705 9570 Tue-Sat
 0130-0200 B Yugoslavia 9580
 0145-0200 C Vatican 9650 7125
 0145-0215 B Finland 15185 11755
 0200-0230 B Norway 11925 9560 Mon
 0200-0230 B Sweden 11705 9695
 0200-0230 A Swiss R Int'l 12035 9885 9650 6135
 0200-0230 A VOA/Americas 15205 15120 11580 9775
 7405 5995 Tue-Sat
 0200-0250 C Deutsche Welle 15560 15185 13790
 11965 11945 9690 9615 7285
 0200-0255 C Romania 11940 11830 9570 9510 6155
 0200-0300 C Argentina 11710 Tue-Sat
 0200-0300 A Canada 11940 11845 9755 9535 6120
 0200-0300 C KSDA Guam 13720 Sat-Sun
 0200-0300 B Budapest 15220 11910 9835 5970
 0200-0300 C AWR Europe 11835
 0200-0300 B Moscow 15425 11840 11805 11665 9765
 9530
 0200-0300 - WEWN authorized 9985 9370 7520 7425
 5825
 0200-0330 B Cairo 11825 9475
 0200-0400 A Havana 13660 6010
 0200-0400 C Channel Africa 5960 [& 3995 0300-]
 0200-0400 A Taiwan 9680 5950 [& 11740 -0300]
 0200-0400 A WCSN 9350 NAE
 0200-0730 C Australia 21740 17795 17715 15365
 0200-0800 A KVOH 9785 NAE
 0200-1400 A WWCN #2 5935
 0230-0245 C Pakistan 21730 17725 17640 15115
 9515
 0230-0300 B Tirana 11840 9580
 0230-0330 C Pilipinas 21580 17840 17760
 0230-0330 A BBC 15260 11750 9915 7325 6175 6005
 5975
 0245-0300 A BBC/EGbyR 15390 11965 9825 9515 6110
 0250-0300 C Yerevan 10344°
 0250-0310 B Vatican 11620 9605
 0255-0400 A TWR Bonaire 11930 [& 9535 0300-]
 ends July 1
 0300-0330 B Prague 11990 9810 9485 7345 5930
 0300-0330 B Norway 11865 9560 Mon
 0300-0350 A Deutsche Welle 15205 13790 13770
 13610 11890 11810 9700 9640 6145
 6085
 0300-0350 C Turkey 9445
 0300-0400 B Bulgaria 11765 9850
 0300-0400 B China 11715 9770 9690
 0300-0400 C Japan 17810 15230 15210 [& 15325
 11725 -0330]
 0300-0400 B Moscow 15425 13650 12070 11985 11840
 11665 9765
 0300-0400 - WEWN authorized 11715 11580 9985
 9370 7425 5825
 0300-0430 C TGNC Guatemala 3300 [Sun 2345-]
 0300-0430 A VOA/Africa 15115 11850 11835 9885
 9575 7405 6035
 0300-0500 A WYFR 9505 6065
 0300-0700 C KCBI 13720 (may run to 0800)
 0300-0700 B WRNO 7395 NAE
 0330-0400 B Austria 9885 9870 6015
 0330-0400 C Dubai 17890 15400 13675 11945
 0330-0425 A Netherlands 9590 6165
 0330-0430 A BBC 9915 7325 5975
 0340-0350 B Greece 11645 9420 9380 Mon-Sat
 0340-0355 C Venezuela 9540
 0400-0415 C Israel 11587
 0400-0430 C Canada 15445 15275 11905 9650
 0400-0430 B Prague 17535 13715 11990 9810 9485
 7345
 0400-0430 B Norway 11865 9560 Mon
 0400-0430 C Romania 11940 11830 9570 9510 6115
 0400-0430 A Swiss R Int'l 13635 12035 9860 6135
 0400-0450 C Deutsche Welle 13770 13610 11765
 11705 9765 9565 7225 7150
 0400-0500 B China 11840 11680
 0400-0500 A Havana 6180 6010 [& 13660 -0430]
 0400-0500 B Moscow 15425 13650 12070 11985 11840
 9765 9750 9610 9530
 0400-0500 C Channel Africa 7230 3995
 0400-0500 - WEWN authorized 9985 9370 9350 7520
 7425 5825 NAE
 0400-0600 A WCSN 9840 NAE
 0400-0600 A WSHB 13760 9455 NAE
 0400-0700 C VOA/ME 6873°°
 0400-0700 B WMLK 9465 Mon-Sat NAE
 0400-0800 C KHBI N Mariana Is 17780 17555 NAE
 0430-0500 C HCJB 21455°
 0430-0500 A BBC 5975
 0430-0600 A VOA/Africa 15115 11850 9885 9575
 7405 6035 [& 15600 0500-]
 0445-0515 C Sri Lanka 15425 9720 Tue
 0500-0530 A Canada 17840 11775 9750 7295 6150
 6050
 0500-0550 A Deutsche Welle 13610 11705 9670 9695
 9515 6130 5960
 0500-0553 C FEBC Seychelles 17750 Fri
 0500-0600 B Japan 15420 11910 9725
 0500-0600 B Moscow 15425 13650 12055 11985 11790
 11690 11590 9765 9750
 0500-0600 C Channel Africa 9695
 0500-0600 A Spain 9530
 0500-0600 - WEWN authorized 9985 9370 9350 7465
 7425 5825 NAE
 0500-0600 A WYFR 13695 11725 11580 5985
 0500-0700 A Havana 9510
 0500-0700 B HCJB 21455° 17490° 11925
 0500-0700 C Nigeria 7255
 0500-0730 A BBC 9640 5975
 0530-0600 A Austria 6015
 0555-0825 C Malaysia 15295 9750 6175
 0600-0625 C Vatican 7250 6245
 0600-0700 B Moscow 15425 13650 12055 11985 9765
 9750
 0600-0700 C S Korea 15155 11945
 0600-0700 C Channel Africa 15520
 0600-0700 A VOA/Africa 15600 15115 11925 11850
 9885 9575 9530 7405 6035
 0600-0700 - WEWN authorized 13710 9985 9370 9350
 7465 7425 5825 NAE
 0600-0800 C V of Mediterranean 9765
 0600-0800 A WCSN 9455 NAE
 0600-0800 A WSHB 9840 7395 NAE
 0600-0800 A WYFR 13695 11725 7355 5985
 0630-0700 A Austria 6015

0632-0645 C Romania 9510
 0640-0820 B TWR Monaco 9480 [Sun -0845]
 0658-1206 B New Zealand 9700
 0700-0730 C HCJB 21455° 17490° 15270 11735
 0700-0800 C AWR Europe 11835
 0700-0800 A Taiwan 5950
 0700-0800 - WEWN 13710 11580 9985 9370 7465 5825 NAE
 0700-1400 C KCBI 9815 (may start at 0700)
 0730-0800 C Australia 6020
 0730-0815 A BBC 9640
 0730-0830 C HCJB 21455° 17490° 15270 11925 11735 9745
 0730-1025 B Netherlands 11895 [& 9630 -0825; 15470 12065 9720 0930-]
 0800-0845 C Pakistan 21520 17900 NAE
 0800-0900 C KNLS Alaska 9615 NAE
 0800-0900 A Australia 9580
 0800-0900 - WEWN authorized 11580 9985 9370 7465 NAE
 0800-1000 C KHBI N Mariana Is 17555 15665 NAE
 0800-1000 A WCSN 9840
 0800-1000 A WHRI #1 7355 [Sun -1100] NAE
 0800-1000 A WSHB 13615 9455 NAE
 0800-1100 C VOA/ME 21570 21455 17770 15195 15160 11735 [& 21455 -1000]
 0800-1530 C KHBN Palau 9830 NAE
 0830-0848 C Georgia R 11910 [Sun 0730-0748]
 0830-1130 C HCJB 21455° 17490° 11925 9745
 0900-1000 A Australia 13605 9580
 0900-1000 D Bhutan 6035 Sun
 0900-1000 - WEWN authorized 9985 9370 NAE
 0900-1100 C FEBC Philippines 11690 9800
 0900-1100 C BBC 15190
 0910-0940 D Ulan Bator 12015 11850 Mon/Thu/Sat
 1000-1030 C Vietnam 15010 12020 9840
 1000-1100 A Australia 13605 9580 5995
 1000-1100 C India 21735 17895 17387 15050
 1000-1100 C Channel Africa 17805
 1000-1200 C KHBI N Mariana Is 17555 13625 NAE
 1000-1200 A VOA/Asia 5985 [& 9760 1100-]
 1000-1200 - WEWN authorized 9370 NAE
 1000-1200 A WYFR 5950 [& 11830 1100-]
 1000-1200 A VOA/Americas 15120 11915 9590
 1000-1200 A WCSN 13770 Sat-Sun NAE
 1000-1200 B WSHB 9495 9455 NAE
 1000-1300 A WHRI #1 9850 except Sun NAE
 1000-2400 B WWCR #1 15685
 1030-1100 B S Korea 11715
 1030-1125 C Netherlands 15470 12065
 1030-1200 C Bulgaria 17830 17660 13670
 1055-1230 A TWR Bonaire 15345 11815 ends June 30
 1100-1120 C Pakistan 21520 17900
 1100-1130 B S Korea 9650 6145
 1100-1130 A BBC 15260 15220 9915 6195 5965
 1100-1130 C Vietnam 9840 7287
 1100-1150 B Pyongyang 11335 9977 6576
 1100-1200 A Australia 13605 9710 9580 9510 7240 6080 5995
 1100-1200 B Japan 15240 11910 6120
 1100-1200 C Channel Africa 9730
 1100-1300 B AWR Costa Rica 13750 9725* [*varies]
 1130-1145 B BBC/EGbyR 21490 15190
 1130-1200 C Austria 13730
 1130-1200 B Vlaanderen 17515 15530 Sun
 1130-1200 B Finland 15400 11900 Mon-Fri
 1130-1200 A BBC 15260 15220 9515 6195 [& 5965 Sat-Sun]
 1130-1200 C Yugoslavia 21605
 1130-1325 C Netherlands 9650 5955
 1130-1430 B HCJB 21455° 17890 17490° 15115 11925
 1130-1230 C Thailand 9655 4830
 1140-1155 C Venezuela 9540
 1200-1225 C Tashkent 17815 15295 9715 7285
 1200-1230 A Canada 17820 11855 9635 Mon-Fri
 1200-1230 D Ulan Bator 12015 11850 Mon/Thu/Sat
 1200-1255 C Warsaw 11815 9525 7145 6135
 1200-1300 A Australia 9580 6020 5995 [& 9710 7240 6080 -1230]
 1200-1300 C China 15210
 1200-1300 B S Korea 9640
 1200-1300 C AWR Europe 11835
 1200-1300 B BBC 15260 15220 9740 9515 6195
 1200-1300 - WEWN authorized 18930 15205 9370 NAE
 1200-1300 A WYFR 17750 11830 6015 5950
 1200-1320 C Brazil 15445
 1200-1330 B VOA/Asia 15425 11715 9760 6110
 1200-1400 C KHBI N Mariana Is 13625 9425 NAE
 1200-1400 A WCSN 15665 Sat-Sun NAE
 1200-1400 A WSHB 13760 9495 NAE
 1200-2400 B RFPI 21465° 7385
 1200-0200 B WWCR #2 13845
 1207-1649 B New Zealand 9510 occasional
 1215-1330 C Cairo 17595
 1230-1300 C Bangladesh 15208
 1230-1300 C Canada 15195 9660
 1230-1300 B Finland 15400 11900 Mon-Sat
 1230-1300 B France 21645 21635 17575
 1230-1300 C Sweden 21500 15240
 1230-1300 C Vietnam 15010 12020 9840
 1300-1325 C Israel 17575 15650 15640 11603 11587 Sun-Thu
 1300-1330 C Vlaanderen 17515 15530 Mon-Sat
 1300-1355 B Finland 15400 11900 Sun
 1300-1400 C KNLS Alaska 9615 NAE
 1300-1400 B BBC 15260 15220 11820 9740 9515 6195
 1300-1400 B WHRI #1 11790 [Sun 1100-] NAE
 1300-1400 - WEWN authorized 18930 17535 13710 9370 NAE
 1300-1400 A WYFR 17750 13695 11830 6015 5950
 1300-1500 C China 11855
 1300-1600 A Canada 17820 11955 Sun
 1300-1600 C Iraq 15250
 1300-1600 C FEBC Philippines 11995
 1300-1600 B KJES 11715 NAE irregular
 1300-1700 B Australia 11800 9580 [& 5995 -1430]
 1300-1700 A WHRI #2 9465 [Sun -1600] NAE
 1330-1355 C Tashkent 17815 15295 9715 7285
 1330-1400 C Austria 17730 15450
 1330-1400 B Canada 21455 15325 15315 11935 11795 9535 [& 21710 17895 17820 Mon-Sat]
 1330-1400 B Finland 15400 11900 Mon-Sat
 1330-1400 C Vietnam 15010 12010 9840
 1330-1400 B VOA/Asia 15425 9760
 1330-1500 C India 15120 11760
 1330-1625 C Netherlands 17610 13770 9890 [& 15145 -1425; 15150 1430-]
 1335-1345 B Greece 17515 15630
 1400-1500 B France 17650 15405 11900
 1400-1500 B Japan 11865 11835 11735 9750 9535
 1400-1500 C S Korea 9570

- 1400-1500 B BBC 17840 15260 9515 [& 11820 9740 Sat-Sun; 6195 -1430]
- 1400-1500 C VOA/ME 15205
- 1400-1500 - WEWN authorized 18930 17525 17510 9370 NAE
- 1400-1600 C KHBI N Mariana Is 13625 9530 NAE
- 1400-1600 A WCSN 17510 NAE
- 1400-1600 A WSHB 13760 [& 17510 Sat-Sun] NAE
- 1400-1600 A WYFR 17750 11830 11705 [& 6105 -1500]
- 1400-1700 C VOA/Asia 15395 9760 9640 7215 6110 [& 9700 1500-]
- 1400-1800 A WHRI #1 15105 NAE
- 1400-2130 C KCBI 15375 or 15725
- 1415-1500 D Bhutan 5025 Mon-Sat
- 1430-1600 B HCJB 21455° 17890 17490° 11925
- 1440-1455 C Venezuela 9540
- 1445-1515 D Ulan Bator 7780 7560
- 1500-1530 B Sweden 21500 15240
- 1500-1530 C Nat'l Unity Radio Sudan 9165
- 1500-1555 C Warsaw 11840 9525 7285
- 1500-1555 C FEBC Seychelles 11710 [Sun -1558]
- 1500-1600 B Japan 15355 11865 11815 9750
- 1500-1600 C FEBC Seychelles 9810 15530 except Sun
- 1500-1600 B BBC 17840 9515 [& 15260 Sat-Sun]
- 1500-1600 - WEWN authorized 18930 17730 17510 13615 11735 NAE
- 1500-1700 C Moscow 17760 17735 15290
- 1500-2200 C VOA/ME 19379°
- 1500-2300 B WRNO 15420 NAE
- 1500-0100 A KTBN 15590
- 1500-0200 A KVOH 17775 NAE
- 1530-1540 B Greece 17525 15645 15630 Mon-Sat
- 1600-1630 B HCJB 21455°
- 1600-1630 C Pakistan 17725 15675 15555 15515 13590 11570
- 1600-1630 D Vietnam 15010 12020 9840
- 1600-1640 C Dubai 21605 15320 13675 11795
- 1600-1700 C RTVA Algeria 15160 11715
- 1600-1700 C China 15170 15130 11575
- 1600-1700 B France 17850 17795 17650 17620 15530 12015 11845 11705
- 1600-1700 C KSDA Guam 11980
- 1600-1700 C Channel Africa 15220 4945
- 1600-1700 - WEWN authorized 18930 17730 15695 13615 11735 NAE
- 1600-1700 A WYFR 21615 21525 17750 15355 11830 11705
- 1600-1745 B BBC 15260 9515 [& 17840 -1615]
- 1600-1800 C KHBI N Mariana Is 11580 9355 NAE
- 1600-1800 A WSHB 17555 17510 Sat-Sun NAE
- 1600-2000 A WCSN 21640 NAE
- 1600-2100 C Saudi Arabia 9720 9705
- 1600-2100 B WINB 15295 NAE
- 1630-1700 C Austria 11780
- 1630-1800 B HCJB 21480 21455° 17790 17490° [Sat -1730; Sun -1745]
- 1630-1830 C Cairo 15255
- 1650-1849 C New Zealand 9675 Mon-Sat
- 1700-1715 C Israel 17575 15650 15640 11603 11587
- 1700-1730 B Canada 21545 17820 15325
- 1700-1730 C Swiss R Int'l 17635 15430 13635 9885
- 1700-1755 C Warsaw 9525 7270
- 1700-1800 C Japan 17775 11865 11815 9750
- 1700-1800 C Pakistan 15550 9430
- 1700-1800 C Moscow 17760 17735 15290 12050
- 1700-1800 C Channel Africa 11750 4945
- 1700-1900 C KSDA Guam 13720 Sat-Sun
- 1700-1900 C VOA/Asia 15395 9700 9645 7125 6110
- 1700-1900 A WYFR 21500
- 1700-2000 - WEWN authorized 18930 15695 13615 11735 NAE
- 1700-2000 B WMLK 9465 Sun-Fri NAE
- 1700-2400 A WHRI #2 13760 [Sun 1600-] NAE
- 1700-fade C Australia 11910 11880 9580
- 1730-1800 C Vatican 17730 15090 11625
- 1730-1900 C Bulgaria 13670 11720
- 1730-2025 C Netherlands 21590 [& 21515* 7120 6020 -1925; 17605 1930-] [*replaced by temporary 17655 late May-early June]
- 1745-1945 C India 15075 11935 11860 11620 9950 7412
- 1745-2000 C BBC 15070 12095
- 1800-1830 C Slovakia 9605 7345 5915
- 1800-1830 D Vietnam 15010 12020 9840
- 1800-1900 B HCJB 21455° [Sat 1730- ; Sun 1745-]
- 1800-1900 B KJES 11715 NAE irregular
- 1800-1900 C Moscow 17760 15290 12050
- 1800-2000 C KHBI N Mariana Is 9495 9430 NAE
- 1800-2000 A VOA/Africa 17800 15580 15410 15320 13710 11995 11920 [& 15495 1900-]
- 1800-2000 A WSHB 15665 [& 17555 Sat-Sun] NAE
- 1800-2100 C Kuwait 13620 [may start at 1730]
- 1800-2245 C Iraq 11805 NAE
- 1800-2300 A WHRI #1 17830 NAE
- 1840-1855 C Venezuela 9540
- 1850-2136 C New Zealand 11735 Mon-Sat
- 1900-1930 C Israel 17575 15650 15640 11603 11587
- 1900-1930 C Japan 11875 11865 11815 9750 9640
- 1900-1930 C Vilnius 9710
- 1900-1930 D Vietnam 15010 12020 9840
- 1900-2000 C RTVA Algeria 17745 11715 9535
- 1900-2000 B HCJB 21480 21455° 17790 17490°
- 1900-2000 C Spain 15375
- 1900-2000 C AWR Europe 9835
- 1900-2000 C Moscow 17760
- 1900-2000 C VOA/Asia 15180 11870 9525
- 1900-2100 A WYFR 21615 15355 [& 21525 17612½ 2000-]
- 1930-2025 C Warsaw 9525 7285 7270 6135
- 1930-2030 C Tehran 15260 9022
- 1940-2010 D Ulan Bator 11850 11790
- 2000-2030 C Swiss R Int'l 15505 13635 12035 9885
- 2000-2030 C Vatican 15090 11625 9645
- 2000-2050 C Turkey 9445
- 2000-2100 C Bulgaria 15330 11720
- 2000-2100 C Moscow 15340 15150 11760 11730
- 2000-2100 B BBC 15260 5975
- 2000-2100 B KJES 9510 NAE irregular
- 2000-2100 A VOA/Africa 21485 17800 15580 15410 15320 13170 [& 15160 2030-]
- 2000-2100 - WEWN authorized 18930 17840 15695 13615 NAE
- 2000-2130 B HCJB 21455°
- 2000-2200 C KHBI N Mariana Is 13840 9455 NAE
- 2000-2200 A WSHB 17555 15665 NAE
- 2000-2400 A WCSN 13770 NAE
- 2000-0100 C KHBN Palau 9830 NAE
- 2005-2105 C Damascus 15090 12085 9950
- 2030-2100 D Vietnam 15010 12020 9840

2030-2130 B Canada 17875 17850 17820 15325 13670
13650 7325 5995
2030-2200 C Cairo 15375
2045-2230 C India 15265 11715 11620 9950 9910
7412
2100-2130 C Yugoslavia 9505
2100-2200 B Havana 17760
2100-2200 C Budapest 11910 9835 7220 6110
2100-2200 C Japan 15430 11925 11815 9750 9640
2100-2200 C R Galaxy 11880
2100-2200 B Moscow 15355 15340 15290 11760 11750
11730
2100-2200 C Ukraine 9640 9550 7240 7150 6090
6070 4825
2100-2200 B BBC 15260 9590 5975
2100-2200 A VOA/Africa 21485 17800 15580 15495
15410 15290 13710
2100-2200 C VOA/Asia 17735 15185 11870
2100-2200 - WEWN authorized 18930 17840 17760
15695 13720 13615 NAE
2100-2200 A WYFR 21615 21525 17612½ 15566
2100-2245 B WINB 15185 NAE
2103-2113 C Croatian R Zagreb 13830 9830 5920
2110-2210 D Damascus 15090 12085 9950
2115-2130 B BBC/Caribbean 21660 17715 15140
Mon-Fri
2115-2245 C Cairo 9900
2130-2200 B HCJB 21480 21455° 17790 17490°
2130-2200 B Israel 17575 15650 15640 11603 11587
2130-2200 C Vilnius 9710
2130-0300 C KCBI 15725
2137-0658 C New Zealand 15120
2140-2155 C Venezuela 9540 Tue-Sat
2145-2200 C Yerevan 11960 11920 9450
2145-2315 B Bulgaria 15330 11720
2200-2225 C Vlaanderen 9905 [& 5910 Sun only]
2200-2230 C Tirana 11825 9760
2200-2230 C Swiss R Int'l 12035 9885 9810 5995
2200-2230 B KGEI 15280 Sun
2200-2250 C Turkey 11895 9445 7185
2200-2300 C Australia 17795
2200-2300 B Havana 6180
2200-2300 B Moscow 15290 11805 11750
2200-2300 A Taiwan 21720 17750
2200-2300 A BBC 15260 11750 9915 9590 7325 5975
2200-2300 - WEWN authorized 17760 13615 11820
9370 7425 5825 NAE
2200-2300 A WYFR 21525 17612½
2200-2400 C KHBI N Mariana Is 15405 13625 NAE
2200-2400 C Abu Dhabi 15315 15305 11885
2200-2400 C VOA/Asia 17820 17735 15305 15290
15185 11760 9770 7210
2200-2400 C VOA/ME 11960 11895 9530 7195 7140
6160
2200-2400 A WSHB 17555 9465 NAE
2200-2430 B HCJB 21455° NAE
2200-1300 - WRMI 9955 NAE [tentative for June]
2230-2400 A Canada 13670 9755 7195 5995 5960
[Sat-Sun -2300]
2245-2300 C Yerevan 11980 9480
2245-2305 C Vatican 15090 11830 9600
2245-2445 C India 15145 15110 11785 11745 9910
2200-0300 C Iraq 17940 15180 NAE
2245-0330 B WINB 15145 NAE
2300-2330 B Vilnius 11750 Mon-Fri
2300-2330 C Norway 11795 9655 Sun

2300-2350 C Pyongyang 13650 11700
2300-2400 C Australia 21740 17795
2300-2400 C Japan 17810 15430 7140 6125 6050
2300-2400 B Moscow 11840 11805 11750
2300-2400 A BBC 15260 11750 9915 9590 7325 6175
5975
2300-2400 - WEWN authorized 17760 17510 15650
11820 7425 5825 NAE
2300-0200 C KSDA Guam 15610
2300-0800 A WHRI #1 9495 NAE
2300-0100 B AWR Costa Rica 9725* 5030 [*varies]
2300-0300 B WRNO 7355 NAE
2315-2330 C BBC/EGbyR 15390 11765 9825 9560 6110
2330-2400 B Vlaanderen 13655 9930
2330-2400 C Sri Lanka 15425 Mon
2330-2400 D Vietnam 15010 12020 9840
2330-0125 A Netherlands 6165 6020 [& 11835
0030-]
2345-2400 B BBC/EGbyR 15390 11765 6110 5875
24 hours C CBC 6070 [CFRX Toronto]
24 hours C CBC 6005 [CFCX Montreal]
24 hours A WJCR 13595 7490

Times are UT; frequencies in kHz. All daily unless otherwise indicated. Schedules subject to change without notice.

Signal quality (a very rough guide): A: reliable; B: regular; C: occasional; D: rare.

NAE: not all English.

°=USB; °°=LSB (the VOA's are feeders; some may have another lang on the other sideband).

Compiled mostly from gh sources (WOR, DX DAILY, RIB, DXLD); plus monitoring DX pgms such as MEDIA NETWORK, DX PARTY LINE, etc.

The compiler does not claim that this is a list of ALL English broadcasts that can be heard in North America, nor does he claim that all frequencies will be audible at any given time.

SELECTED ENGLISH LANGUAGE DX/SWL/MEDIA PROGRAMS

SUNDAY

0008-0018 Spain DX SPOT 9530
0018-0028 Swiss R Int'l SW MERRY-GO-ROUND 17730
12035 9885 9650 6135
0039-0130 HCJB DX PARTY LINE 21455 17490 15155
9745
0105-0135 KSIR WORLD OF RADIO 1010 107.1 MHz
0108-0118 Spain DX SPOT 9530
0110-0130 VOA COMMUNICATIONS WORLD 15205 15120
11695 11580 9775 9455 7405 5995
0115-0119 Prague DX SPECIAL 11990 9485 7345
0123-0133 Deutsche Welle DX WORLD MEETING after
last Sat 15105 13770 13610 11865
11810 9765 9700 9565 6145 6085 6040
0130-0145 Havana DXERS UNLIMITED 9815 6010
0140-0144 Austria BROADCAST NEWS 9880 9870 6015
0200-0230 RFPI WORLD OF RADIO 21465 7385 7375
0215-0230 KSDA DX ASIAWAVES 13720
0218-0228 Swiss R Int'l SW MERRY-GO-ROUND 12035
9885 9650 6135
0245-0250 Romania DX MAILBAG 11940 11830 9750
9510 6155
0245-0250 VOFC RADIO CORNER after last Sat
11740 9680 5950
0252-0257 Budapest DX WORLD 15220 11910 9835

5970

0305-0335 WWCN #1 WORLD OF RADIO 7435
 0309-0400 HCJB DX PARTY LINE 21455 17490 15155 9745
 0315- Turkey DX PROGRAM biweekly 9445
 0323-0333 Deutsche Welle DX WORLD MEETING after last Sat 15205 13790 13770 13610 11890 11810 9700 9640 6145 6085
 0330-0340 TWR BONAIRE WAVELENGTH 11930 9535 last pgm June 27
 0330-0345 Havana DXERS UNLIMITED 13660 6010
 0330-0400 WSUI WORLD OF RADIO 910
 0335-0430 WWCN #1 SPECTRUM 7435
 0415-0419 Prague DX SPECIAL 17535 13715 11990 9810 9485 7345
 0508-0518 Spain DX SPOT 9530
 0509-0600 HCJB DX PARTY LINE 21455 17490 11925
 0523-0533 Deutsche Welle DX WORLD MEETING after last Sat 13610 11705 9670 9605 9515 6130 5960
 0530-0545 Havana DXERS UNLIMITED 9510
 0530-0554 Japan MEDIA ROUNDUP 15240 11910 9725
 0540-0544 Austria BROADCAST NEWS 6015
 0745-0750 VOFC RADIO CORNER after last Sat 5950
 1000-1030 RFPI WORLD OF RADIO 21465 7385 7375
 1135-1152 Korea SW FEEDBACK 9650
 1240-1257 Korea SW FEEDBACK 9640
 1320-1325 Israel DX CORNER 17575 15650 15640 11603 11587
 1430-1454 Japan MEDIA ROUNDUP 11865 11835 11735 9750 9535
 1435-1452 Korea SW FEEDBACK 9570
 1615-1630 KSDA DX ASIAWAVES 11980
 1730-1754 Japan MEDIA ROUNDUP 17775 11865 11815 9750
 1815-1830 KSDA DX ASIAWAVES 13720
 1925-1929 Israel DX CORNER 17575 15650 15640 11603 11587
 2130-2154 Japan MEDIA ROUNDUP 15430 11925 11815 9750 9640
 2200-2300 WWCN #1 RADIO TECHNIQUES 15685
 2245-2250 VOFC RADIO CORNER after last Sat 21720 11750
 2300-2330 RFPI WORLD OF RADIO 21465 7385
 2300-2330 WWCN #1 WORLD OF RADIO 15690

MONDAY

0130-0154 Japan MEDIA ROUNDUP 17845 17775 17810 15195 11860 5960
 0140-0157 Korea SW FEEDBACK 15575
 0300-0330 WHRI #2 WORLD OF RADIO 7315
 0345-0350 VOFC RADIO CORNER after last Sat 9680 5950
 0430-0500 New Zealand MAILBOX biweekly 15120
 0635-0648 Korea SW FEEDBACK 15155 11945
 0700-0730 RFPI WORLD OF RADIO 21465 7385 7375
 1040-1045 India DXERS CORNER 2nd & 4th 21735 17895 17895 15050
 1230-1300 WWCN #1 WORLD OF RADIO 15685
 1307-1317 Vlaanderen RADIO WORLD 17515 15530
 1435-1440 India DXERS CORNER 2nd & 4th 15120 11760
 1840-1845 India DXERS CORNER 2nd & 4th 15075 11935 11860 11620 9950 7412
 2130-2135 India DXERS CORNER 2nd & 4th 15265 11715 11620 9950 9910 7412
 2155-2159 Israel DX CORNER 17575 15650 15640

11603 11587

2340-2345 India DXERS CORNER 2nd & 4th 15145 15110 11785 11745 9910

TUESDAY

0030-0130 WHRI #2 DX RADIO SHOW 7315
 0247-0252 Romania FOR RADIO AMATEURS 11940 11830 9570 9510 6155
 0530-0600 WHRI #1/2 DX RADIO SHOW 9495 7315
 0930-0955 Australia COMMUNICATOR 13605 9580
 1130-1155 Australia COMMUNICATOR 13605 9710 9580 9510 7240 6080 5995
 1130-1200 WWCN #1 WORLD OF RADIO 15685
 1250-1300 Sweden MEDIASCAN [w. SWEDEN CALLING DXERS 1st & 3rd] 21500 15240
 1520-1530 Sweden MEDIASCAN [w. SWEDEN CALLING DXERS 1st & 3rd] 21500 15240
 1530-1555 Australia COMMUNICATOR 11800 9580
 1730-1755 Australia COMMUNICATOR 11910 11800 9580
 1900-1930 RFPI WORLD OF RADIO 21465 7385
 2140-2155 Havana DXERS UNLIMITED 17760
 2152-2157 Budapest DX NEWS 11910 9835 7220 6110
 2240-2255 Havana DXERS UNLIMITED 6180

WEDNESDAY

0030-0100 WHRI #2 DX RADIO SHOW 7315
 0040-0055 Havana DXERS UNLIMITED 9815 6010
 0220-0230 Sweden MEDIASCAN [w. SWEDEN CALLING DXERS after 1st & 3rd Tue] 11705 9695
 0240-0255 Havana DXERS UNLIMITED 13660 6010
 0252-0257 Budapest DX NEWS 15220 11910 9835 5970
 0300-0330 RFPI WORLD OF RADIO 21465 7385 7375
 0415-0425 BBC WAVEGUIDE 9915 7325 5975
 0440-0455 Havana DXERS UNLIMITED 6180 6010
 0530-0600 WHRI #1/2 DX RADIO SHOW 9495 7315
 0640-0655 Havana DXERS UNLIMITED 9510
 0800-0830 HCJB HAM RADIO TODAY 21455 15270 17490 11925 11735 9745
 1030-1100 HCJB HAM RADIO TODAY 21455 17490 11925 9745
 1100-1130 RFPI WORLD OF RADIO 21465 7385 7375
 1230-1300 WWCN #1 RADIO TECHNIQUES 15685
 1700-1730 HCJB HAM RADIO TODAY 21480 21455 17790 17490
 1930-2000 HCJB HAM RADIO TODAY 21480 21455 17790 17490
 2100-2130 HCJB HAM RADIO TODAY 21455
 2152-2157 Budapest DX WORLD 11910 9835 7220 6110

THURSDAY

0018-0022 Prague DX SPECIAL 11990 9810 9485 7345 5930
 0030-0100 WHRI #2 DX RADIO SHOW 7315
 0100-0130 HCJB HAM RADIO TODAY 21455 17490 15155 9745
 0130-0140 BBC WAVEGUIDE 15260 11750 9915 9590 7325 6175 6005 5975
 0152-0224 Netherlands MEDIA NETWORK 13700 12025 11655 9860
 0252-0257 Budapest DX WORLD 15220 11910 9835 5970
 0318-0322 Prague DX SPECIAL 11990 9810 9485 7345 5930
 0330-0400 HCJB HAM RADIO TODAY 21455 17490 15155 9745
 0530-0600 HCJB HAM RADIO TODAY 21455 17490

11925

0530-0600 WHRI #1/2 DX RADIO SHOW 9495 7315
 0752-0824 Netherlands MEDIA NETWORK 11895 9630
 0830-0900 New Zealand MAILBOX biweekly 9700
 0952-1024 Netherlands MEDIA NETWORK 15470 12065
 11895 9720
 1152-1224 Netherlands MEDIA NETWORK 9650 5955
 1352-1424 Netherlands MEDIA NETWORK 17610 15145
 13770 9890
 1552-1624 Netherlands MEDIA NETWORK 17610 15150
 13770 9890
 1752-1824 Netherlands MEDIA NETWORK 21590
 21515* 7120 6020 [*replaced by tempo-
 rary 17655 late May-early June]
 1952-2024 Netherlands MEDIA NETWORK 21590 17605

FRIDAY

0030-0100 WHRI #2 DX RADIO SHOW 7315
 0052-0124 Netherlands MEDIA NETWORK 13700 11655
 9860 9825 6165 6020
 0252-0324 Netherlands MEDIA NETWORK 13700 12025
 11655 9860
 0352-0424 Netherlands MEDIA NETWORK 9590 6165
 0530-0600 WHRI #1/2 DX RADIO SHOW 9495 7315
 1930-2000 New Zealand MAILBOX biweekly 11735
 2000-2030 RFPI WORLD OF RADIO 21465 7385
 2115-2145 WWCN #1 WORLD OF RADIO 15685
 2152-2157 Budapest DX NEWS 11910 9835 7220 6110

SATURDAY

0030-0100 WHRI #2 WORLD OF RADIO 7315
 0145-0200 Portugal DX PROGRAM triweekly 11840
 9705 9570
 0252-0257 Budapest DX NEWS 15220 11910 9835
 5970
 0400-0430 RFPI WORLD OF RADIO 21465 7385 7375
 0418-0428 Swiss R Int'l SW MERRY-GO-ROUND 13635
 12035 9860 6135
 0500-0530 WNQM WORLD OF RADIO 1300
 0530-0600 WHRI #1/2 WORLD OF RADIO 9495 7315
 0739-0830 HCJB DX PARTY LINE 21455 17490 15270
 11925 11735 9745
 0930-1000 WWCN #1 WORLD OF RADIO 7435
 1009-1100 HCJB DX PARTY LINE 21455 17490 11925
 9745
 1030-1040 BBC WAVEGUIDE 15190
 1130-1140 TWR BONAIRE WAVELENGTH 15345 11815
 last pgm June 26
 1200-1230 RFPI WORLD OF RADIO 21465 7385
 1210-1230 VOA COMMUNICATIONS WORLD 15425 11715
 9760 6110
 1307-1317 Vlaanderen RADIO WORLD 17515 15530
 1610-1630 VOA COMMUNICATIONS WORLD 19379
 1615-1630 KSDA DX ASIAWAVES 11980
 1718-1728 Swiss R Int'l SW MERRY-GO-ROUND 17635
 15430 13635 9885
 1800-1830 RFPI WORLD OF RADIO 21465 7385

These schedules were updated to June 14, 1993, and the closing date for this issue was June 15. Some last-minute corrections by gh were entered in the by-country section only.

GH EXPLORES CENTRAL NORTH AMERICA 60-minute cassette to accompany travelogue in DXLD-38, including travellers, Indian and Canadian stations, is now available, \$12 ppd in North America, \$13 elsewhere from Glenn Hauser, Box 81874, Albuquerque, NM 87198.

OUR ADDRESSES? Please use the Albuquerque address until further notice, tho the Box 1684, Enid OK 73702 is being maintained for possible reactivation in the future, and to continue serving as a forwarding point.

NOW YOU CAN PHONE OR FAX YOUR DX NEWS TO GH: 1-505-266-9012 voice; 1-505-237-1042 fax anytime.

1909-2000 HCJB DX PARTY LINE 21480 21455 17790
 17490
 1930-2000 WPKN WORLD OF RADIO 89.5 MHz
 2015- Turkey DX PROGRAM biweekly 9445
 2018-2028 Swiss R Int'l SW MERRY-GO-ROUND 15505
 13635 12035 9885
 2039-2130 HCJB DX PARTY LINE 21455
 2107-2117 Vlaanderen RADIO WORLD 9905
 2110-2130 VOA COMMUNICATIONS WORLD 21485 17800
 15580 15495 15410 15290 13710
 2130-2145 Havana DXERS UNLIMITED 17760
 2152-2157 Budapest DX WORLD 11910 9835 7220
 6110
 2215- Turkey DX PROGRAM biweekly 11895 9445
 7185
 2218-2228 Swiss R Int'l SW MERRY-GO-ROUND 12035
 9885 9810 5995
 2230-2245 Havana DXERS UNLIMITED 6180
 2315-2330 KSDA DX ASIAWAVES 15610
 2337-2347 Vlaanderen RADIO WORLD 13655 9930

Times & lengths are nominal & may vary. Some HCJB, RFPI & Havana freqs are USB. All programs have one edition per week/cycle except DX RADIO SHOW (4) & DXERS UNLIMITED (2).

Times for Bulgaria's DX program are not known to the compiler at the time of printing.

The compiler does not claim that this list includes all "DX" programs, nor is it claimed that all times & freqs for any particular program is given. Not all programs listed have SW news & SW-oriented features.

SOME PROGRAM PRESENTERS or DX REPORTERS

WORLD OF RADIO: Glenn Hauser
 MEDIA NETWORK: Jonathan Marks
 BONAIRE WAVELENGTH: Chuck Roswell
 COMMUNICATIONS WORLD: Gene Reich
 DX CORNER: Ben Dalfen
 DXERS UNLIMITED: Arnie Coro
 DX PARTY LINE: John Beck until the return of
 Rich McVicar
 DX SPECIAL [centerpiece of mailbag CALLING ALL
 LISTENERS]: Libor Kubic
 DX SPOT: Terry Burgoyne; Allison Hughes or Mary
 Fitzhugh
 HAM RADIO TODAY: John Beck
 MAILBOX: Arthur Cushen DX Tips
 MEDIA ROUNDUP: Mark Robinson
 MEDIASCAN: George Wood
 RADIO CORNER: Wendy Yu
 RADIO TECHNIQUES: Howard Weinstein
 RADIO WORLD: Frans Vossen
 SW FEEDBACK: William Matthews DX Report or
Technical Corner
 SW MERRY-GO-ROUND: Bob Zanotti, Bob Thomann

SATELLITE WATCH

by Loren Cox

HOW MUCH LONGER

will monitoring / DXing / the transmissions (audio & video) from the C & Ku Band satellites be an activity for the radio hobbyist with an inclination toward that pursuit? We have been so engaged for some eight years. Others, of course, having taken their cue from home TVRO pioneers like Bob Cooper, preceded us by a few years in this endeavour. Those were the days when there were no more than four satellites radiating television programming. Initially, this reception was accomplished with home constructed and surplus microwave equipment - a technical challenge for a "real" radio man. This was coupled with a DXers curiosity as to just what all is up there. (No, the incentive wasn't to get Cable programming "for free".) The work of these experimenters resulted in technological breakthroughs that made possible commercial enterprises producing satellite reception equipment for the home. As the possibility of television from the skies became known to a larger segment of the public - yes, some caught on that this was a means - albeit a not inexpensive one - of receiving "pay" programming without proffering payment - but they were never among the true TVRO aficionados - a new industry came into being. The price of manufactured equipment - such manufacturers of it as there had been were producing it only for the commercial market - began falling and continued to fall as its potential for performance increased. Now we have "dishes" of reduced size but increased efficiency, very sophisticated receivers, and LNAs and LNBs in noise temperature ranges that would have seemed impossible eight to ten years ago.

But the days of scanning the "birds" for DXing pleasure - never knowing what video feed or audio service may be revealed at the next push of a button or turn of a dial - as well as this being an ever ready source of unedited news/information or news/information from more than the usual sources (and some entertainment programming - feeds of syndicated shows being the hobbyists' favourites) - are most likely - indeed, are almost certainly - to come to an end. The only question is the time frame, and that would appear to depend on the speed and the extent of the implementation of digital compression technology.

The great charm of DC for networks and other distributors of programming by satellite - virtually its only charm - is in the area of economics: it's obviously going to be cheaper to transmit six or eight program services per satellite transponder - cheaper per program service - than just one. That's what DC makes possible. There seems to be no advantage realized in regard to video quality - indeed, reports are that video quality is compromised, depending on the degree of compression employed. Evidently what Cable programmers and networks like PBS are going to do is to compress to the threshold of viewer acceptability - which, so far as the "masses" are concerned - is pretty low. The programmers and networks know that; after all, the people watch, without complaint, multipathed over-the-air transmissions and the inferior quality video pumped down most cable lines. Of course, viewers will be told that "digital" is ipso produces better picture definition (the viewers via Cable & broadcast will be seeing these digital transmissions translated back into analog - at some point digital transmissions may be going directly to a digital TV receiver). According to a speaker I heard last night addressing a seminar on DC - it was a part of the SMPTE Forum, which was being carried on a PBS channel - the PBS system (a form, we understand, of GI's "Digicypher") will produce

video quality of the order of that produced by a home VCR (isn't that inspiring?!).

Currently, there are a number of DC technologies, apparently incompatible, vying for network and program distributor adoption (HBO and SHOWTIME have already announced the adoption of different systems). And we understand PBS are to use a version of Digicypher that is different from the one to be used by Cable programmer HBO.

Now the question is, will there be receivers available to the home TVRO community permitting reception of digitally compressed transmissions, and, if so, which ones? It seems highly likely that the only DC transmissions authorized for home reception will be upcoming DBS services like DIREC-TV, which will be radiated from high power (150 w.) Ku Band satellites, receivable on "pie plate" size "dishes". This won't be "satellite" as "dish heads" have known it. DIREC-TV are promising 200 channels or more of video being transmitted from two co-located high power satellites. But it appears that the programming to be offered will be nothing much more than the current Cable fare, plus many channels of "pay-per-view" movies - actually not that many different movies, but with all of those channels they can have start times staggered at, say, 15 minute intervals, so that the "pay-per-view" purchaser can get his movie virtually on demand. Other programming could also be available on a time choice basis. So when you hear talk about 200 to 500 channel Cable or DBS systems, that doesn't necessarily mean there will be that much variety in programming despite the obvious possibility for it in so far as channel capacity is concerned. And most of the programming will continue to be the sort that holds little interest for the "dish" hobbyist/DXer.

There could be one - and only one - type of "program package" - if such should ever be offered - that would induce your columnist to subscribe to a DBS service. That would be one specifically devoted to international television and radio, carrying all of the video services being put up by the world's broadcasters for the international audience, as well as much of the radio that has constituted shortwave broadcasting. Of course, DEUTSCHE WELLE FERNSEHEN subjected to digital compression wouldn't likely look as good as it does today in wide band analog on C4/5. Still, if that were the only way it was to be made available./ Guess I'm envisioning a multi-channel SCOLA but with more English language programming; and wouldn't it be great to have access to some domestic services like BBC Radio 4 (BBC WORLD SERVICE TV would obviously have to be part of such a "package"). [Are you listening DIREC-TV? Have told you the only way you'll ever get me.]

A spokesman for DIREC-TV who took part in the seminar referred to above gave assurances as to the excellent quality of the video his service would provide; but one man's "excellent", especially if big bucks and one's job are involved in the perpetuation of such an assessment, may be another man's threshold (or even below) of acceptability. We suspect digital compression technology for television is being pushed into use prematurely, being hardly out of the laboratory (actually the same thing occurred with respect to NTSC colour television, the performance of the earlier sets being quite poor - but selling the public on these sets provided the capital to invest in improvements). (DIREC-TV's elaborate production & transmission facility in Castle Rock, CO is now well under construction; will have hundreds of tape decks spinning out the many channels of "pay-per-view" movies, for which they hope and assume there will be millions of customers. This could be a vain hope and a false assumption.)

When PBS announced their whoopsie-do plans for many channels of programming transmitted in DC on the Telstar 401 satellite (not yet launched), "dishers" were hopeful that they might have available to them DC receivers (or adaptors for existing receivers - perhaps a DC tuner that could be connected into the satreceiver's IF loop, then tuned in the same way as an SCPC receiver so connected)

which would permit continued reception of PBS programming (as was possible - if one had a VC II decoder - back when PBS was transmitting with VC II encryption; was "fixed key", no authorization for reception required). But it appears that the form of "Digicypher" PBS are to use will not be available to those of us with our own "dishes". Kentucky Educational Television have plans for DC transmissions of their Star Channels on T401. We wonder how much the taxpayers of Kentucky are to be soaked for the implementation of this technology - multiply the \$1500 or so cost of a DC receiver by the some 4000 schools in Kentucky to receive the programming.

So "dishers" can say goodbye to PBS - Christensen's regime having always looked upon them with loathing. And other networks and program distributors will be tucking away their programming and other "proprietary" feeds (news "backhauls", etc.) in DC modes unavailable to spying "dishers". It won't happen tomorrow, but in a year or so the process will likely be under way, and within no more than five years or so the dark night of "dishdom" (if not of the soul), as we have known it, could be upon us?-the controllers of "media" holding illimitable dominion over all.

(We understand that National Public Radio feeds are to go "digital", other major radio networks - Westwood, CBS, ABC, etc. having long ago done so. Minnesota Public Radio, Nebraska Public Radio and [sometimes] WDET, Detroit, carrying NPR programming, are currently available via satellite analog subcarrier. What will happen to the subcarrier audio services now available to us when DC becomes the dominant mode of satellite transmission? They will still be there, for specific intended users, but in digital form. Audio services - likely mostly to be digital music channels - will be a part of DBS services. But will be available only by subscription, and gone will be the "disher's" fun of hunting for, and finding, radio from the sky on one's own.)

Our favourite candidate for Washington's budget cutting axe: The Corporation for Public Broadcasting - eliminate it as a creature of government. Since it strives to function like a private corporation, then let it be one. The CBP has consistently violated its charter.

SATELLITE NOTES: RTP, the Portuguese channel from Lisbon, has moved from Spacenet 3, Ch. 24 to Galaxy 3, Ch. 7. With this change of satellites "scrambling" (VC II+) was instituted. Has been in "fixed key" but we wouldn't anticipate that lasting long. Had been enjoying some of the music of the Portagoose.

There are now FM² transmissions - audio & data - on ANIK E1, Tr. 6 (center freq. 11865 MHz), vertical polarization.

The feed of the MUTUAL RADIO NETWORK's Western Program Feed - put up by Standard Broadcasting of Canada - has been moved from Anik E2, Ch. 2, 7.605 MHz to 7.515 MHz, same transponder. (Narrow deviation, some noise.)

NBC are now providing a full time (24 hours per day) news channel in Spanish. Called CANAL NOTICIAS NBC, the service is on Spacenet 2, Ch. 5. According to a report on VOA, the channel is being uplinked from Charlotte, NC. It is intended for Cable systems in the Caribbean and Latin American countries. No mention by VOA that it is available - at least for now - by private satellite viweing. Public service announcements have been occurring in spots where we assume commercials will be placed.

Have noted improved quality of VOA in Eng. on S2/3, 7.605. Had been some noise, but now full quieting (had noticed absence of noise on the C-SPAN AUDIO ONE relay - thought they'd improved their equipment - but upon checking S2 reception found the improvement). VOA EXPRESS - in stereo - is up for a part of the day (noted at 20:00 UTC). The stereo is in improved quality: previously had been what appeared to be modulation problems. News, features, pop mx.

THE ITN WORLD NEWS (via Keystone, Los Angeles) is being shown at 5:30 pm ET on Spacenet 4, Ch. 10. Sometimes comes up early with the ITN NEWS AT TEN in progress, but may be without sound.

TV JAPAN (NHK TOKYO) have moved from Galaxy 2; are now on Satcom C1. Ch. 17. Continue on PanAm-Sat 1, 11920 MHz.

CJRT-FM, Toronto (Anik E2, 12000 MHz, 5.76-5.94 MHz) have finally run out of "Goon Show" programs for the 10:00 am ET Tuesday feature (enabled me to record a number of these programs I didn't

have). Are now running "Yes, Minister" - radio version - beginning with the first episode.

DEUTSCHE WELLE TELEVISION, in one of their "Feature" series, recently presented programs concerned with three great German writers: Lessing, Goethe and Schiller. (Tune in DWF on Satcom C4, Ch. 5.) A tri-lingual program guide, Ihre Welle, is available for DWF programming. Request from the DW Köln address: P.O. Box 10 04 44, D 5000, Köln 1. Even if you don't have a "dish" obtain a copy to see what you're missing. TV audio is now on 6.8 MHz; DW radio in German is on 6.8 when billboard is up; is always on 7.12 MHz; English and other language services of DW radio are on 7.38 MHz.

CHANNEL AMERICA, an unscrambled program service for LPTV stations and satellite viewers, has moved from Spacenet 2, Ch. 5 to ASC 1, Ch. 20. S2/5, as indicated above, is now the home of the new CANAL NOTICIAS NBC.

CNN NEWSOURCE on G Star 4, 12096 MHz, is now Leitch Encrypted. Used to be B-MACed, then was "in the clear" for a while. CNN's CHECKOUT CHANNEL, intended to be viewed by supermarket shoppers, was scheduled to be terminated at the end of March. CC has been on GS 4. Tr, 3 (11852 GHz). There is a story that, as a substitute for the specially produced CC, CNN HEADLINE NEWS will be put up on this transponder for supermarket viewing [this has happened - HEADLINE NEWS is up in a "clear feed"]. - And CNN's MCD TV (CNN MacDonalds) for fat & cholesterol stuffers didn't last long.

SPEAKING OF CNN: In these early days of April CNN INTERNATIONAL has been up in CLEAR PAL on Galaxy 7, Ch. 20. CNN INTERNATIONAL is much to be preferred to the domestic product (not chopped up with commercials). The feed of CNNI on S3/16 was "unLeitched" for a few days; now "secure" again.

SWISS RADIO INTERNATIONAL IS NOW AVAILABLE IN NORTH AMERICA VIA SATELLITE on subcarriers on the Deutsche Welle TV transponders on Intelsat K and Satcom C4, the former being Tr. H7 (11605 MHz), sub-carrier frequency 8.10 MHz (footprints for both North & South America), and the latter being Tr. 5 (3800 MHz), same subcarrier frequency, 8.10. Great to have this access to all SRI programming in "hi-fi" 24 hrs per day. 11605 MHz reception requires non-N.A. standard LNB, which is 11700-12000 MHz.

The FOX CHANNEL (for Cable/Satellite, as distinguished from Fox program feeds for TV stations) is now to be found on Satcom C1, Ch. 19 (had formerly been on Galaxy 3). Fox Network feeds are on Telstar 3, several transponders.

BILL BRAGG's YESTERDAY USA SUPERSTATION is now on a "prime" wideband subcarrier. SpaceComm of Dallas are now uplinking YUSA to Spacenet 3, Ch. 5, 6.8 MHz. Excellent audio quality, even on "Oxydol's Own Ma Perkins". With SHOP AT HOME's move to G3/17, YUSAS is on G3/17, 6.20 MHz.

The INDEPENDENT BROADCASTING NETWORK, with talkshow programming, is on Satcom C3, Ch. 6., 5.8 MHz (wideband). Let Sonny Block teach you how to get rich! Learn what rotters Bill & Hillary are!

TV ASIA with programming from India is being radiated from Galaxy 3, Ch. 7. Currently up at 7:00 ET. Currently "in the clear", but is to be available only via subscription.

BBC WORLD SERVICE TV, receivable in N.A. via Intelsat 601 (53 deg W), now mostly Leitched out.

The BECKER SATELLITE NETWORK, which carried RADIO NEWYORK INTERNATIONAL & Johnny Lightning unbridled, has folded. Same for RADIO GENESIS INTERNATIONAL, which evidently disappeared a few days after I discovered them. LET'S TALK RADIO is still up with programming every night, beginning at 9 pm ET (Spacenet 3, Ch. 21, 5.8 MHz - sometimes // 6.2 MHz). LTR the only "dish" dedicated programmer - audio or video - left on satellite. LTR program presenters, e.g., the Bourgeoisie, are requesting "underwriting" to defray the cost of the telephone line to the Detroit uplink. Gary needs \$25 per three hour programming to pay the phone bill. When the transponder is lit (PASS, Detroit) and LTR isn't programming, public radio station WDET, Detroit, is being put up.

GUESS YOU'VE NOTICED the satellite "dish" in the Waco Wako's compound. Seems that the Networks like to show the view in which it is most visible. It is never mentioned, but is there nonetheless a message here? - See, it's only nuts, wierdos and nefarious sorts that have one of those things. Never understood why the gendarmes felt constrained to storm the place. According to neighbours, Korèsh & Co. hadn't been bothering anyone. ALL organized religions are essentially cults: some are deemed socially acceptable, some not. Satellite feeds of the stake out; views of studio of Dallas radio station KRLD were up on satellite during the period when WW was calling in to them.

Some excellent programming has been appearing on the WARNER BROTHERS channel, Telstar 301, Ch. 3, e.g., the sci-fi series "Time Trax" and an excellent documentary series, "The Wild West". Especially recommend the latter, perhaps available on a TV station in your area. This channel distributes a number of syndicated shows, including "Jenny Jones", the attractive lady who got her tits messed up with silicone implants.

UPI's news magazine "Morning in America" is carried by the FOR THE PEOPLE network, Satcom C1, Ch. 2, 7.5 MHz (wideband). (FTP selling "Selectantenna" and their \$29.95 shortwave receiver.)

GEMS TELEVISION, a channel for Hispanic women, to launch 1 Apr. on S2/24 and Intelsat 310.

Thought K-GAY, the audio service for sexual alternativists, had gone away, not being where we had last heard them - on Galaxy 5 (as we recall) in stereo. But we found them in mono on Galaxy 6, Ch. 17, on a subcarrier tucked well above 8 MHz - 8.35 approx. wideband (hard to determine exact center of carrier of a wideband transmission). If gays, gaydom, aren't offensive to you - why should they be - the channel provides some interesting listening. [Has moved to G3/24 same s.c. freq.]

WOULD LIKE TO THANK CHET COPELAND (DC) for an article

from the New Yorker (date unspecified) on Cable/media/media distribution technology mogul Barry Diller who does it all with COMPUTER POWER / - his "Power Book" showing him the way - & his vision of his (& our) future in the brave new world of electronic (channels squared) information movement, interactive video, supercomputer power, etc.

"Killer" Diller does indeed appear to be a formidable operator evidently set upon conquering the realm of media & the electronic dispersal thereof from his current base - the highly profitable QVC Cable/satellite shopping channel (merchandise sold on these channels are routinely @ a doubling of the cost)

a formidable operator, driven, obsessed, a visionary those qualities, the lack of having of which assures

there shall be no PROGRESS, no possibility of a "better life" as there now can be by means of the new communications/computer technologies with the opportunities they offer for acquisition of power & wealth for those who lust for it as does D/

There is indeed a new world emerging involving computer, media, & means of distribution of information & a consuming public presumably there ready to shell out their bucks for all of it to people like Diller /

Needless to say,

we (editorially speaking) are not enthusiastic about "business buccaneers" like D/ who treat control & distribution of information in exactly the same way they would any other product that becomes a "hot commodity" to be sold to the public - a product the market for which is to be "cornered"

resulting in a power & money machine of gigantic proportions /

In the latter 19th & early 20th c/ men like Diller were in railroads & oil / transportation & energy, those needed commodities & services for a burgeoning industrial & commercially interdependent society - making such a society possible -

So we see the dynamic, foresightful D/ positioning himself to realize the power & wealth to come to him who is the major controller & seller of our now new needed technologies & the, therefore, new needed uses to which they can be put /

[24 March, 1993]

ELLITE NOTES***SATELLITE NOTES***SATELLITE NOTES***SATELLITE NOTES***SATELLITE BOTES***SATELLITE NOT

[29 May] THE IRISH CHANNEL is up every Sunday evening at 7:00 pm EDT on Galaxy 6, Ch. 9 with three hours of programming, including tapes of "live" musical performances and a news program. Haven't yet caught the news program which might reveal the channel is all about, whether it is representative of Eire or Northern Ireland - a presentation of traditional Irish music was a performance from Belfast. Tuned in in progress.

SWISS RADIO INTERNATIONAL was taken down from the DEUTSCHE WELLE TV transponder (Satcom C4, Ch. 5.) at the end of April. Was back up for a few days in May then disappeared again. Continues on the DW transponder on Intelsat K (11.605 GHz, 8.10 MHz subcarrier). The 8.10 subcarrier, which had been carrying SRI on C4/5, has been running unmodulated. In addition, there are unmodulated subcarriers at 7.56, 7.74 and 7.92 MHz. Needless to say, my hope is that the plan is to put international radio on all of these subcarriers. Note that RADIO NEDERLAND continues to eschew putting a service on satellite for home "dish" reception, all of their satellite feeds being digital intended for relay stations.

SPEAKING OF DIGITAL, as I had suspected for a couple of months, and as was confirmed in the June MONITORING TIMES, the satellite feeds of international radio to Sackville for relay by RCI transmitters, are digital: on a Ku Band transponder on Anik E2. These transmissions had been analog SCPC on Anik E1, Ch. 10 [C Band]; there had also been FM² transmissions on this transponder. All that remains on AE1/10 are a couple or so unmodulated carriers, a data transmission and some programming in Eskimo. We listened with frequency to these international radio relays when they were on Anik D1, Ch. 1. We especially liked to listen to BBC RADIO FOUR, which would often be up when there was to be no Sackville relay of BBCWS. But when these SCPC transmissions were moved from AD1/1 to AE1/10, the BBC was placed on a weak narrow deviation carrier (had been receiving with full quieting), but RADIO BEIJING (what is it now? RADIO CHINA INTERNATIONAL?), contrary to the situation on AD1, came in with full quieting. Of course these feeds to Sackville have been a source of international radio for C-SPAN's Cable/satellite radio service, AUDIO ONE; would they tell me what digital rx to use? Unfortunately, reception devices for digital radio transmissions are not available to the satellite monitoring hobbyist. There are several digital formats in use.

(Just checked AE1/10 for SCPC activity: 3 data transmissions, 2 unmodulated carriers and one analog Eskimo.)

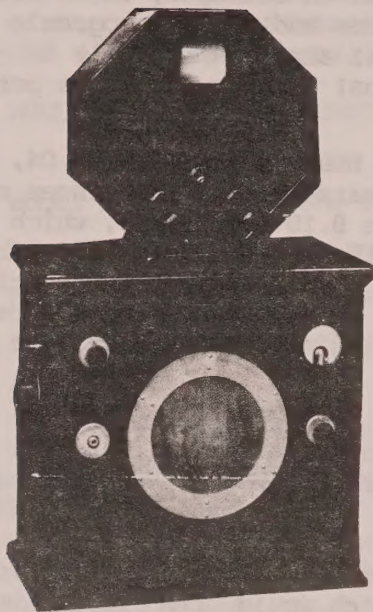
BUT WE'VE GOT RADIO FOUR back again. Because the BBC transmission for the Sackville relay is now being put up on subcarrier: Anik E2, Ch. 20, 7.56 MHz. This provides 21 hours of BBCWS plus about 2 hours & 55 minutes of RADIO FOUR (from 2:00 pm to 4:55 pm EDT) Monday thru Friday (is all BBCWS on weekends). Some excellent programming in this time block, including drama and an arts program (similar to "Meridian" on BBCWS) called "Kaleidoscope". On Friday evenings at 4:45 pm EDT (9:45 pm London time), the first 10 minutes of Alistair Cooke's "Letter from America" can be heard - RADIO FOUR being taken down at 4:55 pm EDT with BOW BELLS coming up. As we recall, when listening to RADIO FOUR via SCPC on AD1/1, when daylight shifting time ends, everything on R 4 will be an hour earlier than it is now, meaning "Letter from America" can be heard complete. On this broadcast for the domestic audience Mr Cooke begins "Good evening" and concludes "Good night". RADIO FOUR is subject to being interrupted for feeds from London for CBC programs ("As It Happens", "Sunday Morning", "Basic Black", etc.). Also on AE2/20 is the CBC mono network (Eastern Time zone) and Radio Canada stereo (French). This is especially convenient for me on Sunday mornings as we can simultaneously listen to (and/or record) "Sunday Morning" and Sunday morning BBCWS programming from the same satellite transponder (had been doing this by means of C-SPAN's AUDIO ONE [which carries "Sunday Morning"] and AUDIO TWO [BBCWS], but AUDIO ONE is marred by crosstalk from the C-SPAN schedule info subcarrier on 5.58 MHz. But RCI fidelity better - a tip off feed had gone digital.

THE YESTERDAY USA SUPERSTATION (featuring "golden age of radio" programming) is now available on three satellites: Spacenet 3, Ch. 5, 6.8 MHz (wideband), the primary feed, uplinked from Dallas (the program goes to the uplink via a high-fidelity link from YUSAS owner/operator Bill Bragg's home in Richardson, Tx.) Secondary downlinks are Galaxy 3, Ch. 17, 6.2 MHz (wideband) and Galaxy 6, Ch. 14, 5.76 MHz (narrowband). YUSAS programming is available at no charge to Cable and broadcast entities. Even if you can't listen to the YUSAS, we recommend the YUSA publication, AIRWAVES, available for \$15 per annum (4 issues). Beginning as nothing much more than a pamphlet of a few pages, the publication has evolved into professionally produced and edited magazine. The current issue (Spring 1993) contains the first installment of your columnist's "Some Memories of the Soaps" - based on recollections of our exposure to that famous genre of radio drama. The YUSA address is 2001 Richardson, TX 75081. IF YOU'RE ON CABLE, CONTACT YOUR CABLE COMPANY ASKING THEM TO CARRY YUSA - assuming you like the old radio shows - and who wouldn't?

TV ASIA, with programming from the sub-continent on Galaxy 3, Ch. 7, has been in an "in the clear" preview mode, but will shortly be available only by subscription; same for the MINORITY BROADCASTING COMPANY MOVIE NETWORK (all black programming) on Galaxy 3, Ch. 21.

THE MEDIA MIND

by Loren Cox



THIS TIME, continuing to indulge our well known interest in tem-poris acti, we thought we would take some peaks at the "stone age" of television, that is, the period in television development from the mid-1920s to the mid- and latter 1930s, when, except toward the end, the technology of television primarily involved mechanical transmission and reception systems. Experiments with electronic scanning using the cathode ray tube were going on at the same time, but the mechanical approach provided the first, semi-practical, form of television. This will not be a full historical survey. Some photographic material will be included; unfortunately reproduction, by means of this form of publication, will not be very good, but maybe something of their interest/importance can be suggested.

The device at the left looks like an antique radio reception device of some sort. It can be identified as a television set by the small ground glass screen in the octagonal cabinet setting atop the larger cabinet. Controls are to be seen on both units (the larger unit has a meter [measuring what?] and a large circular grille behind which, we assume, is a loudspeaker). This set is said by General Electric to be the first one ever developed for

home reception of television programming. It was the result of laboratory work by prominent GE engineer and television pioneer Dr E.F.W. Alexanderson, one of whose major inventions was the Alexanderson Alternator, used in spark transmission. This set was shown to the public in 1928. Its introduction was accompanied with some attempts at actual television programming.

As for what we have here: the octagonal unit contains the scanning disc with its spiral of holes, the motor that spins the disc, the neon lamp whose flickering with the spinning holed disc in front of it causes a picture to be "painted" on the ground glass screen, the screen of course, and controls presumably for picture "framing" or whatever. The larger unit houses the radio receiver, the "audio output" of which is connected to and controls the flickering of the neon lamp; another audio output, actually from a second receiver, would drive the speaker. Transmission would be by two - possibly three - carrier waves, one containing the video information, one carrying audio and one possibly a synchronizing signal, derived from the scanning motor at the point of transmission so that the motor at the receiving point would be running at the same speed; additionally or alternatively the speed of the receiving scanning motor could be controlled manually: it is obvious that for proper reception the scanning discs at both the transmitter and receiver must be rotating at exactly the same speed. The synchronizing signal might be multiplexed onto the video carrier. [*Conjecturing.]

"On September 11, 1928, the first television drama was broadcast from the General Electric laboratories in Schenectady, New York... The play was an old melodrama The Queen's Messenger, by J. Hartley Manners. The cameras of 1928 could 'see' only a small area and were not easily moved. Three cameras were used. Two were focused on the heads of each of the two members of the cast. The third was trained on the 'props', and the hands which manipulated them. These hands were supplied by two additional actors - their hands 'doubling' for those of the two actors, whose heads were seen. The director of the show operated the controls, fading each camera in and out at the proper times." [From 4000 Years of Television by Richard W. Hubbell, New York, 1942.]

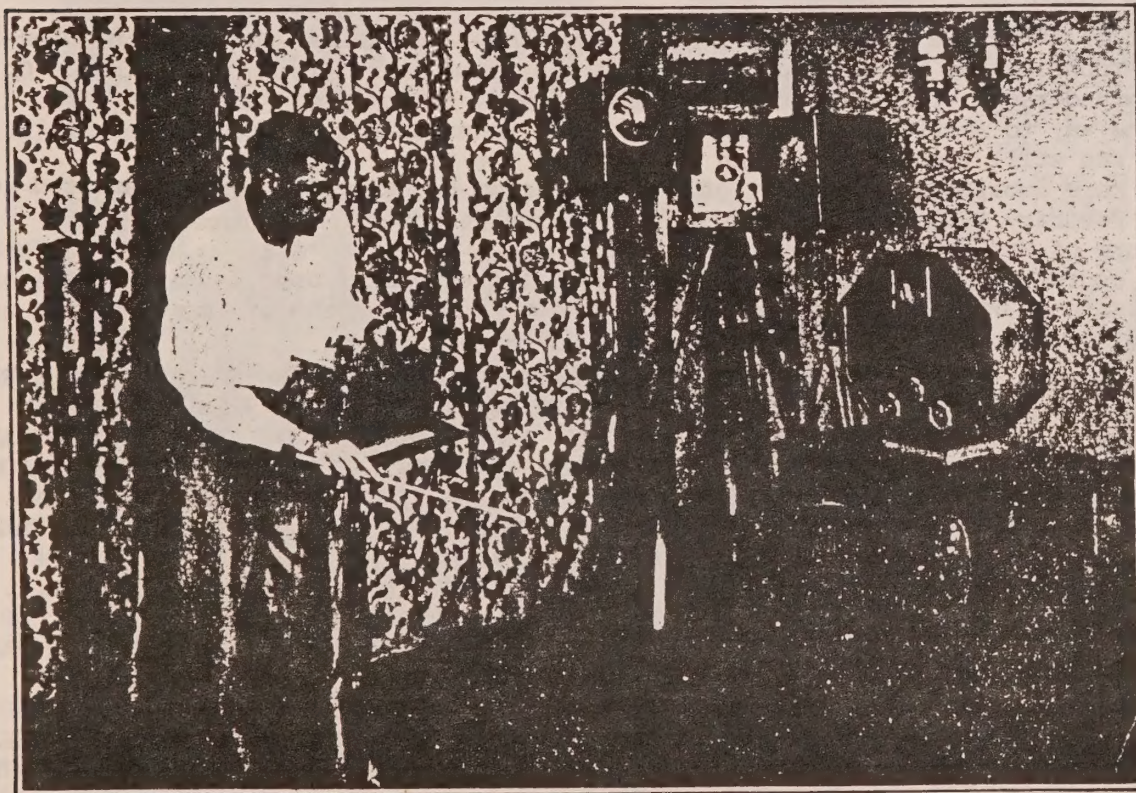
According to a GE advertisement (source of the picture above) in this same year, 1928, "General Electric engineers would telecast Governor Alfred E. Smith's acceptance speech when nominated as Democratic candidate for President of the United States. It would be the first 'remote' television pickup on record."

Now we had assumed that the GE television broadcasts referred to above were both picture & sound (isn't that a speaker grille - the large circular area on the bottom of the two units above?), but, according to Hubbell, it wasn't until "the end of March [1930], in England, [that] the BBC and John Baird [vide infra] began broadcasting both picture and sound together for the first time." This is broadcasting of sound & picture together would have been accomplished in the manner described above - what we thought GE were doing - by means of two RF carriers, one carrying video and the other carrying aural information - e.g., GE's medium wave station, WGY, could have been carrying the sound for the drama as presumably it was carrying the sound for Al Smith's speech. So maybe the device above is for video only, does not contain a sound receiver, tho' by the early 1930s a few dual receivers - a conventional radio and a video receiver - were being incorporated into one cabinet. A separate radio tuned to the sound channel was the way most experimenters/hobbyists of the time would have been receiving a television sound channel if one was being transmitted. Interestingly, a TV sound channel

became a radio station that remains on the air to this day: WQXR in New York. Radio listeners liked the music that would often be played when pictures were being transmitted, so the TV station's owner, John V.L. Hogan, continued with the broadcasting of classical music when the television experiment was discontinued.



THE FIRST FORMAL TELEVISION BROADCAST OCCURRED ON 11 SEPTEMBER 1928 FROM GENERAL ELECTRIC'S FACILITY IN SCHENECTADY, NEW YORK. IT WAS A DRAMATIC PRESENTATION: THE QUEEN'S MESSENGER. BECAUSE OF THE LIMITATIONS OF THE TECHNOLOGY IT COULD HAVE CONSISTED OF NOT MUCH MORE THAN "TALKING HEADS" - WE ASSUME TALKING, THO' IT IS NOT CLEAR FROM OUR SOURCES. DEVICES THAT COULD BE MICROPHONES APPEAR TO BE PRESENT. WITHOUT SOUND DIALOG WOULD HAVE TO BE GRAPHIC AS IN SILENT MOVIES, BUT THAT WOULD HAVE BEEN MOST UNLIKELY BECAUSE OF THE TINY SCREEN AND POOR DEFINITION. WE ARE GUESSING THAT THE AUDIO WAS ON GE'S MEDIUM WAVE STATION, WGY. THE VIDEO CARRIER WOULD HAVE BEEN ON A LOW FREQUENCY, JUST ABOVE THE "BROADCAST" BAND.



THE PHOTOGRAPH AT THE LEFT SHOWS THE DIRECTOR OF THE TELEVISION PLAY. HE IS VIEWING WHAT TODAY WE WOULD CALL A MONITOR IN ORDER TO SEE WHAT THE VIEWING AUDIENCE WOULD BE SEEING IN ORDER THAT THE EFFECTS BE AS HE DESIRES. HE HAS AT HIS COMMAND A CONTROL BOX WHEREBY HE CAN FADE IN OR OUT THE THREE CAMERAS THAT WERE BEING USED FOR THE TELECAST.

THE AUDIENCE FOR THIS BROADCAST WAS SURELY MINUSCULE ON THE BASIS OF THE NUMBER OF RECEIVING SETS THAT COULD HAVE BEEN AVAILABLE, BUT CONSIDERING THE RADIO FREQUENCIES USED FOR TRANSMISSION (THE VID-

EO PRESUMABLY WAS ON ONE OF THE VIDEO CHANNELS ABOVE 1600 KHZ), THE SIGNAL WAS LIKELY TO HAVE BEEN RECEIVABLE OVER A VERY WIDE AREA. ANYONE WITH A RADIO WHO MIGHT HAVE TUNED IN TO THE APPROPRIATE FREQUENCY WOULD HAVE HEARD ONLY A BUZZING SOUND, NOT UNLIKE WHAT ONE HEARS TODAY WHEN TUNING THROUGH THE TELEVISION BANDS ON ON A U/V SCANNER COVERING THOSE FREQUENCIES.

[The photographs here and some to follow are from Television: Present Methods of Picture Transmission by Sheldon and Grieswood, New York, 1929.]

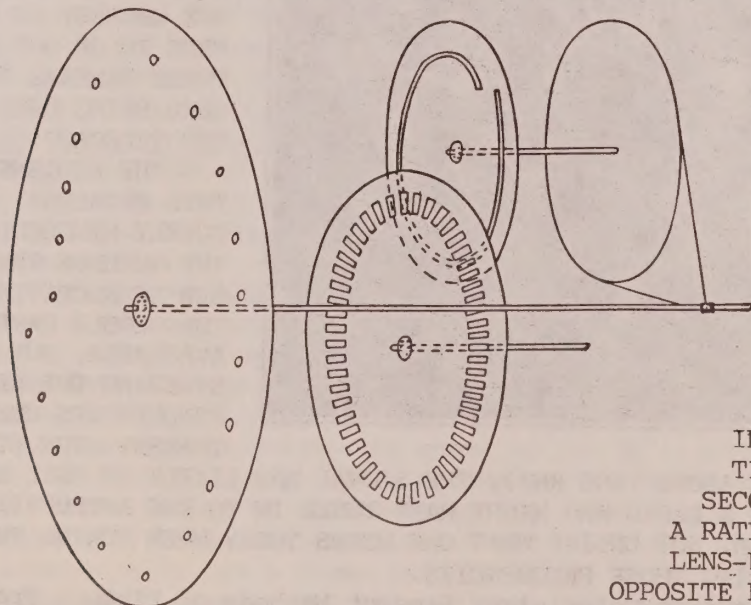


GENERAL ELECTRIC RESEARCH ENGINEER AND RADIO INVENTOR E.F.W. ALEXANDERSON (AND FAMILY, PRESUMABLY) WATCHING A LATE 1920's MECHANICAL SCAN TELEVISION SET IN A HOME SETTING (QUITE POSSIBLY VIEWING THE QUEEN'S MESSENGER). IT WILL BE NOTED THAT IN THE SET HERE THE TV SCREEN AND SCANNING MECHANISM ARE IN THE SAME CABINET WITH THE RADIO RECEIVER. ON THE RIGHT THERE APPEARS TO BE A LOUDSPEAKER CABINET. THERE ARE TWO TUNING DIALS ON THE TV SET - ONE FOR VIDEO RECEPTION AND THE OTHER FOR

AUDIO RECEPTION FROM INDIVIDUAL RADIO TUNERS? DR ALEXANDERSON IS HOLDING A CONTROL WHEREBY HE COULD CONTROL THE SPEED OF THE MOTOR THAT ROTATES THE SCANNING DISC WHICH MUST TURN AT EXACTLY THE SAME RATE AS A SIMILAR DISC AT THE TRANSMITTER.

TODAY, as the result of satellite technology, the intercontinental transmission of television is a commonplace. But intercontinental television (of a sort) was accomplished over 60 years ago. On 18 February 1930, Dr Alexanderson, via shortwave, from Schenectady, transmitted "a picture - rectangular design - all the way to Australia and back again. The round trip took about an eighth of a second - and the design was still recognizable when it finished the trek." [Hubbell]

But something a bit more ambitious in the way of a visual image had already been transmitted across the Atlantic on 9 February 1928 by that intrepid television promoter, Scotsman John Logie Baird. The famous picture of Mrs Howe was sent from London to a receiving station near New York City - by shortwave, of course. We find no report of the actual frequencies used for either Alexanderson's or Baird's transmissions, but they would probably have been on wavelengths of twenty meters or shorter. It was reported that Mrs Howe was "recognizable".



THE ARRANGEMENT OF SCANNING DISCS AS BAIRD'S SYSTEM WAS IN THE LATE 1920s. THE FIRST DISC, WHICH CONTAINS 32 LENSES IN A SPIRAL FORMATION FUNCTIONS AS AN IMAGE DESSECTOR, I.E., AS THE LENS-DISC ROTATES EACH LENS IN TURN SCANS A STRIP OF THE SCENE TO BE TRANSMITTED, PROJECTING THE ILLUMINATION THE SCENE PROVIDES ONTO A PHOTOELECTRIC CELL. WHATEVER VARIATIONS IN ILLUMINATION OCCUR ALONG THE SCENE STRIP ARE PROJECTED IN RAPID SUCCESSION ONTO THE CELL. AS EACH LENS SCANS ITS STRIP IT IS FOLLOWED BY SUCCEEDING LENSES, EACH SCANNING ITS STRIP UNTIL THE WHOLE SCENE IS SCANNED. WITH THE DISC ROTATING AT 800 RPM THE WHOLE SCENE IS SCANNED 800 TIMES PER MINUTE - APPROXIMATELY 13 TIMES PER SECOND [TODAY'S ELECTRONIC SCANNING - NTSC - IS AT A RATE OF 30 FRAMES PER SECOND]. THE DISC BEHIND THE LENS-DISC, WITH 64 RADIAL OPENINGS, ROTATES IN THE OPPOSITE DIRECTION AT 1000 RPM, ITS FUNCTION BEING TO CHOP THE VARYING BUT CONTINUOUS LIGHT STRIKING THE PHOTO-

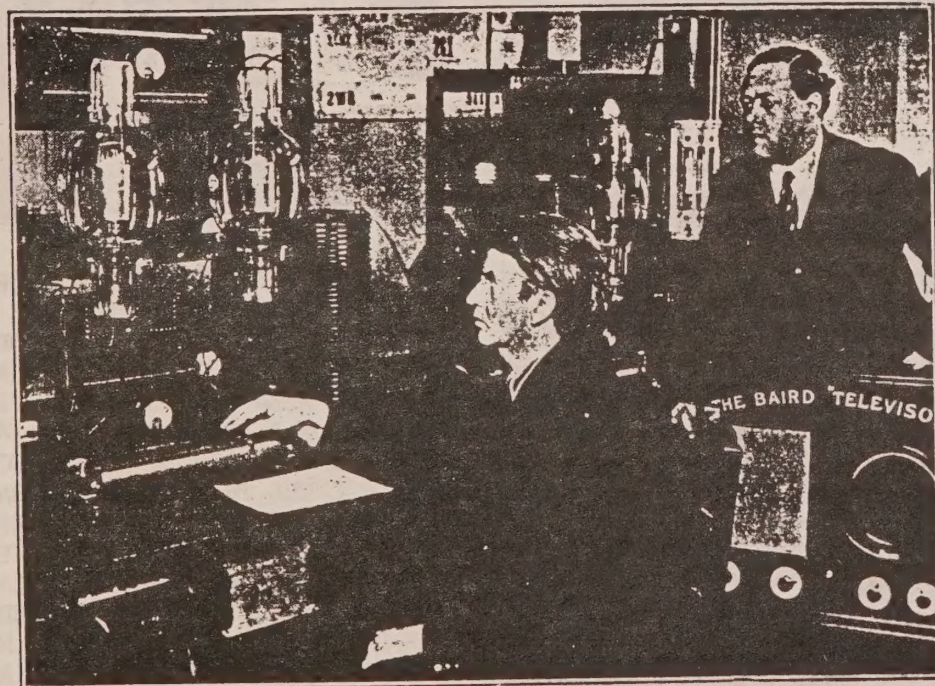
ELECTRIC CELL INTO IMPULSES: THIS ENHANCES AMPLIFICATION, ESPECIALLY IF A "STRIP" SHOULD BE OF UNIFORM BRIGHTNESS RESULTING IN A PURE DC COMPONENT TO BE AMPLIFIED. OTHER ADVANTAGES ARE ALSO OBTAINED. THE EFFECT OF THE THIRD DISC WITH THE SPIRAL SLOT, WHICH ROTATES AT A SLOW RATE OF SPEED, IS TO MULTIPLY THE NUMBER "STRIPS" BEING SCANNED, EQUIVALENT TO PLACING MANY MORE LENSES IN THE LENS-DISC. THE RESULT IS IMPROVED PICTURE DEFINITION. (TODAY, OF COURSE, THE "SCAN STRIPS" BEING SO NARROW, THEY ARE REFERRED TO AS "SCAN LINES".) AT THE RECEIVE END, THE PROCESS IS SIMPLY REVERSED, EXCEPT THAT THE "CHOPPER" DISC IS ELIMINATED, HAVING NO FUNCTION IN RECEPTION. LIGHT FROM THE MODULATED GLOW (NEON) LAMP PASSES THROUGH THE LENSED AND SLOT DISCS TO PRODUCE A STILL OR MOVING PICTURE ON THE GROUND GLASS SCREEN: AGAIN DISC SPINNING MOTORS AT THE TRANSMIT AND RECEIVE END MUST BE EXACTLY IN SYNC.

THERE WERE VARIATIONS AMONG MECHANICAL SCANNING SYSTEMS, BUT WE WILL LET THE BAIRD SYSTEM BE ILLUSTRATIVE.



MRS HOWE WITH A GROUP AROUND THE TRANSMITTER AS HER VISAGE WAS BEING SENT TO NEW YORK IN J.L. BAIRD'S TRANSATLANTIC TEST OF HIS TELEVISION SYSTEM. THE TEST WAS SUCCESSFUL IN THE SENSE THAT A PICTURE WAS RECEIVED, REPORTEDLY OF SUFFICIENT DEFINITION THAT THE LADY WAS RECOGNIZABLE. PRIMITIVE AS IT WAS, THIS WAS THE FIRST OCEAN SPANNING TELEVISION TRANSMISSION.

BECAUSE OF VARIATIONS IN PROPAGATION ON SHORTWAVE OVER THE VERY WIDE BANDWIDTH (5 TO 6 MHZ) REQUIRED FOR THE TRANSMISSION OF TODAY'S ANALOG TELEVISION SIGNALS THOSE FREQUENCIES WOULD BE USABLE ONLY AT GROUNDWAVE RANGE. BUT BAIRD'S AND OTHER MECHANICAL SYSTEMS TRANSMITTED THE VIDEO SIGNAL ON MUCH NARROWER BANDWIDTHS, PERHAPS NO MORE THAN 20,000 HZ, SO WERE COMPATIBLE WITH SHORTWAVE. OF COURSE, TODAY'S SLOW-SCAN TV, REQUIRING NO MORE THAN 4 KHZ BANDWIDTH DOES VERY WELL ON SHORTWAVE.



HERE IS MR BAIRD AT THE TRANSMITTER USED FOR HIS TRANSATLANTIC BROADCAST (THE GENTLEMAN STANDING IS NOT IDENTIFIED). SO FAR AS WE KNOW THERE IS NO PHOTOGRAPH OF THE PICTURE AS RECEIVED THO' WE DO SEEM TO HAVE SOME DIM MEMORY OF A PHOTOGRAPH OF A TELEVISION PICTURE OF EDWARD VIII RECEIVED FROM THIS SIDE OF THE ATLANTIC. ENTIRELY POSSIBLE, SINCE, BEGINNING IN 1936 (2 NOV. TO BE EXACT) THE BBC HAD BEEN TRANSMITTING TELEVISION FROM ALEXANDRA PALACE ON THE 41-45 MHZ BAND, AND THE SIGNAL WAS RECEIVABLE IN THE U.S. DURING THE SUNSPOT MAXIMUM OF CIRCA 1937. AND WE, ALONG WITH MANY OTHER HAMS & SWLS, LISTENED TO THE AUDIO CHANNEL OF BBC-TV DURING PER-

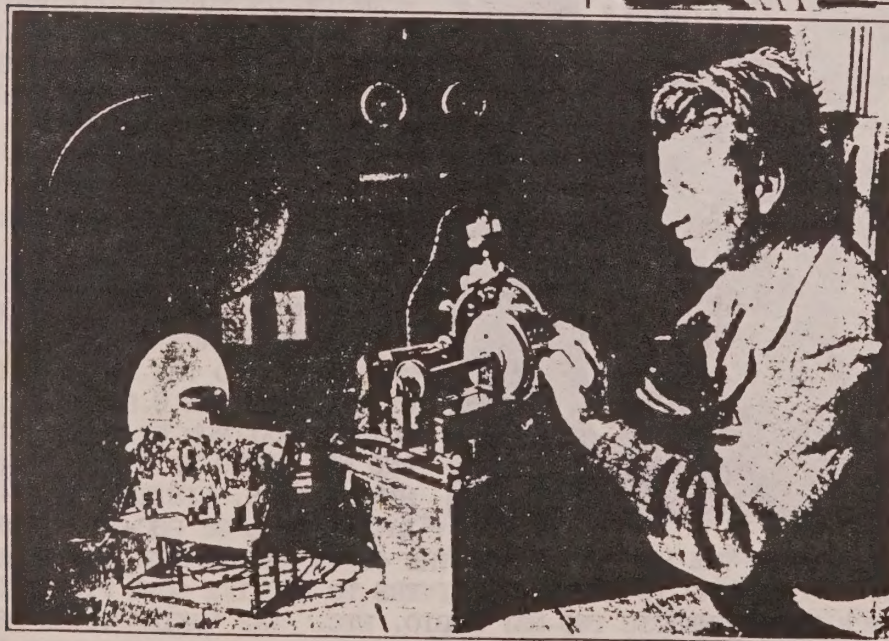
IODS OF SUNSPOT MAXIMA FROM THE LATTER 1950S TO THE LATTER 1970S, THE 41-45 MHZ CHANNEL STILL BEING USED THROUGH THOSE YEARS. SOME EVEN WENT SO FAR AS TO MODIFY RECEIVERS TO RECEIVE SOME PICTURES THROUGH THE MULTIPATHING AND INTERFERENCE FROM DOMESTIC TWO-WAY RADIO, ETC. THE "SKIP" COULD BE IN AS EARLY AS 7:00 AM ET, WOULD BE GONE BY 1:30 PM ET. A FRENCH TELEVISION CHANNEL ALSO OPERATED IN

THIS FREQUENCY RANGE (EUROPEAN CHANNEL ONE). IN THE LATTER '50S WE ALSO HEARD TELEVISION AUDIO FROM GERMANY AND EASTERN EUROPE (USING A SUPERREGENERATIVE RECEIVER). BUT BY THE TIME OF THE LAST SUN-SPOT MAXIMUM THERE WAS NO BRITISH OR EUROPEAN TELEVISION ACTIVITY IN THE 40-50 MHZ RANGE.

BY THE 1930s Mr Baird was experimenting with and demonstrating large screen/projection television. For television to have any commercial viability it was recognized that the picture would have to be larger than the 3" or 4" square picture sets like the ones pictured here provided (we understand that the neon light gave them a pinkish hue). Indeed, the concept being pursued was that of the radio movie, a large screen in the home which would make television competitive with the major entertainment medium of the time, the motion picture (cinema). Even by the time television was formally introduced to the public by RCA in 1939 with cathode ray tube sizes of 5" to 10", it was felt that such a small screen would not be saleable, but the post-War television boom proved that not to be the case, tho' screen sizes soon got up to 17" to 21" (by the end of the "black and white" era CRTs as large as 27" were produced). By 1937, using electronic scanning, projection TV systems were being used for large audience presentations but were not practical for the home. And it has only been quite recently that the home theatre has approached reality with components like the Sharp projection system. What is still lacking is sufficient picture definition for large screens - that must wait for High Definition Television. (These self-contained projection sets are, for us, expensive monstrosities.)

COLOUR TELEVISION IN 1928? HERE IS J.L. BAIRD DEMONSTRATING AN EXPERIMENT IN WHAT IS DESCRIBED AS COLOUR TELEVISION. HOW WAS HE DOING IT? ACCORDING TO SHELDON & GRISEWOOD: "HE USED A NEON BULB FOR THE RED AND A SECOND BULB WHICH COMBINED THE GREENISH-BLUE OF MERCURY WITH THE BLUE OF HELIUM... A PICTURE WAS FIRST SENT WITH ONE COLOR AND THEN WITH THE OTHER, FILTERS AT THE SENDING END BEING USED TO CORRESPOND WITH THE LAMP COLORS AT THE RECEIVING END. A COMMUTATOR IN SYNCHRONISM WITH THE FILTER CONTROL THREW IN FIRST ONE LAMP AND THEN THE OTHER... THE EXPERIMENT WAS A SUCCESS IN SO FAR AS THE LIMITATIONS OF THE LAMPS PERMITTED..."

A MAJOR PROBLEM IN MECHANICAL SCANNING TELEVISION WAS ACHIEVING SUFFICIENT BRIGHTNESS - ILLUMINATION OF THE SCENE TO BE TRANSMITTED AS WELL AS A SUFFICIENTLY BRIGHT RECEIVED PICTURE.



AT THE LEFT IS MR BAIRD AT WORK WITH HIS "PHONOVISOR" - WHICH WAS (WOULD YOU BELIEVE IT?) A VIDEO RECORDER. THE "TV SOUND" (WHAT YOU HEAR WHEN YOU TUNE IN A VIDEO CARRIER ON A SOUND RECEIVER) WAS RECORDED ON A CYLINDER. THE RECORDED SOUNDS COULD THEN BE PLAYED BACK TO MODULATE THE NEON LAMP IN A RECEIVER - PRODUCE THE STREAM OF FLICKERINGS WHICH, IF VIEWED THROUGH A SCANNING DISC RUNNING AT THE SAME SPEED AS THE DISC BEING USED WHEN THE RECORDING WAS MADE - WOULD PRODUCE AN IMAGE - ITS BEING "PAINTED" ON THE GROUND GLASS SCREEN. SURELY A PRIMITIVE SYSTEM - STRICTLY A LABORATORY EXERCISE - BUT A DREAM (LIKE OTHER BAIRD EFFORTS) TO BE REALIZED AT A LATER TIME.

TELEVISION STATIONS ON THE AIR IN THE UNITED STATES IN EARLY 1933
as listed under "Shortwave Stations of the World" in the
February, 1933 issue of Short Wave Craft (by wave-
length and frequency):

- 3.75 to 5 meters - 60 to 80 megacycles
5.96 to 6.18 meters - 48.5 to 50.3 megacycles
6.52 to 7.14 meters - 42 to 46 megacycles
W8XF The Goodwill Station, Pontiac, Mich.
W3XE Philco Radio, Philadelphia, Pa.
W8XL WGAR Broadcastion Co., Cleveland, Oh.
W9XD Milwaukee Journal, Milwaukee, Wis.
W3XAD Camden, N.J.
[There were other experimental television
permits in the 48.5 to 50.3 and 43 to 46
MHz bands.]
- 101.7 to 105.3 meters - 2,850 to 2,950 kc.
W1XAV Short Wave and Television Corp, Boston, Mass.,
1 to 2, 7:30 to 10:30 p.m. daily ex. Sun. Works
with W1XAU 10-11 p.m.*
W2XR Radio Pictures, Inc., Long Island City, N.Y.
4 to 10 p.m. ex. Sun. and 7-7:30 p.m. Sat.
- 105.9 meters - 2,883 kc.
W6XAN Los Angeles, Ca.
W7XAB Spokane, Wash.
- 105.3 to 109.1 meters - 2,750 to 2,850 kc.
W2XAB Columbia Broadcasting System, 485 Madison Ave.,
N.Y. 8:00-10:00 p.m. Sight and Sound transmissions
daily except Saturday and Sunday
W2XB0 Long Island City, N.Y.
W3XE Philco Radio, Philadelphia, Pa.
W9XAA Chicago, Ill.
W9XG Lafayette, Ind. [Purdue Univ.] 60 holes, 1,200
R.P.M. Tuesdays and Thursdays, 2:00 p.m.; 7:00 p.m.,
10 p.m.
- 108.8 meters - 2.758 kc. VE9CI London, Ont., Canada
- 130.4 to 142.9 meters - 2,200 to 2,300 kc.
W9XAL First National Television Corp., Kansas City, Mo.
- 126.4 to 142.9 meters - 2,100 to 2,200 kc.
W2BVS National Broadcasting Co., New York, N.Y., 1,200
R.P.M., 60 lines deep, 72 wide, 2-5 p.m., 7-10 p.m.
ex. Sundays. [Not sure what meant by "deep" & "wide".]
W2XR Radio Pictures, Inc., Long Island City, N.Y., 48
and 60 lines, 5-7 p.m.
W3XAD R.C.A.-Victor Co., Inc., Camden, N.J.
W2XCW Schenectady, N.Y. [General Electric Co.]
W8XAV Pittsburg, Pa.. 1,200 R.P.M., 60 holes, 1:30-2:30
p.m., Mon., Wed., Fri.
W9XAP Chicago, Ill.
..... Kansas State Agracultural College, Manhattan, Kans.
- 142.9 to 150 meters - 2,000 to 2,100 kc:
W2XAP Jersey City, N.J.
W2XCR Jersey City, N.J., 3-5. 6-9 p.m. ex. Sun.
W3XK Wheaton, Md., 10:30 p.m.-midnight ex. Sun. Works
with W3XJ.*
W2XCE Passaic, N.J., 2-3 p.m. Tue., Thur., Sat.
W8XF The Goodwill Station, Pontiac, Mich.
W9XAO Western Television Research, Chicago, Ill.
W9XAA Chicago, Ill.

* According to the television station listing in the
Feb.-Mar. 1932 issue of SWC, W1XAU, Boston, and W3XJ,
Wheaton, Md., operated on 1604 kHz. W1XAU on 1560 kHz by June [TO BE CONTINUED].

THE 1930s saw a continuation of the television experimen-
tation that had marked the
latter 1920s, with a rather
surprising number of experi-
mental stations being on the
air in the United States, as
the sampling from the year
1933 at the left indicates.
The Feb.-Mar. 1932 issue of
SWC shows experimental tele-
vision activity already oc-
curring on the VHF bands
(called UHF in those days).
VHF was better suited for ex-
periments in cathode ray/el-
ectronic scanning television
because of the much wider
bandwidths provided than was
the case with the 100 kHz
wide channels available in
the 1600-3000 kHz range.

In the SWC referred to
above we find a listing of
a station operated by Tele-
funken in Germany on 7.05
meters, 42530 kHz, with op-
erating hours of Tue. & Thur.
- 11:30 to 1:30 p.m. EST. It
is not indicated whether this
station was for aural or vis-
ual transmissions, but we
suspect the latter. (Also, we
suspect, "a.m." was omitted
from the "11:30".)

The Feb.Mar. '32 SWC
lists several stations on
1604 kHz including W2XCU,
Wired Radio (??) in Ampere,
N.J.(Ampere?). Another sta-
tion on this frequency was
the DeForest Radio Company's
W2XCD, Passaic N.J, which was
"synchronized with television
broadcasts" - i.e., provided
sound for video? - and was
the function of at least
some of the other stations on
this frequency?

Station W3XE, which is
shown to have had channels
on both VHF & HF, was Philo T.
Farnsworth's station. W3XE,
at least on VHF, was used to
transmit electronically
scanned pictures receivable
on CRT receivers. (See RIB
#143 for a picture transmit-
ted by W3XE in 1937.) Farns-
worth's work was among the
most significant of the en-
deavours to take television
from the laboratory to the
livingroom.

REVIEW OF INTERNATIONAL BROADCASTING

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Bruce Berr
2619 W Greenleaf, Apt 3
Chicago IL 60645
149#YK2